THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

Telegrams—LANCET, WESTRAND LONDON. *Telephone*—TEMPLE BAR 7228 & 7229. *Offices*—7, Adam Street, Adelphi, W.C.2

No. VIII. of Vol. I., 1930. No 5556. Vol. CCXVIII. LONDON, SATURDAY, FEBRUARY 22, 1930 Founded 1823. Registered as a Newspaper. Published Weekly. Pp. 120 — Price 1s Annual Subscription Inland £2 2s Abroad £2 10s.

OXFORD MEDICAL PUBLICATIONS.

SEE PAGE 5.

FOURTH EDITION. Enlarged and thoroughly revised. Size 9¼ × 5¼. Pp. xii. + 1,281, with 570 illustrations. Price 25s.

JELLETT & MADILL'S

MANUAL OF MIDWIFERY.

"*The most exhaustive treatise on midwifery produced in these islands.*"—BRITISH MEDICAL JOURNAL.

Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2.

"Should be in the possession of every medical man."
—GLASGOW MEDICAL JOURNAL.

URINARY SURGERY

A Handbook for the General Practitioner.

By W. K. IRWIN, M.D., F.R.C.S.,

Assistant Surgeon, St. Paul's Hospital for Genito-Urinary Diseases.

"Clearly written . . . furnishes the practitioner with information of great practical value in his everyday work."—BRIT. MED. JOUR.

SECOND EDITION. REVISED AND ENLARGED. Price 10s. 6d. (postage 6d).

Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2

THIRD EDITION. With many Illustrations. 12s. 6d. net.

TREATMENT OF DISEASES OF THE SKIN.

By KNOWSLEY SIBLEY, M.A., M.D., B.Ch.(Camb.).

London: Edward Arnold & Co., 41 and 43, Maddox-street, W. 1.

CANCER OF THE BREAST AND ITS TREATMENT.

By W. SAMPSON HANDLEY, M.S., M.D. Lond., F.R.C.S. Eng.

Second Revised Edition. With 82 Illustrations. 30s. net.

Published for the Middlesex Hosp. Press by John Murray, London.

THE THOMAS SPLINT AND ITS MODIFICATIONS IN THE TREATMENT OF FRACTURES.

By MEURICE SINCLAIR, C.M.G., M.B., CH.B.(EDIN.).

Pp. 152. 85 Illus., with X-Ray Photographs, 3 Charts. 15s. net.

Oxford University Press, Amen House, London, E.C.4.

CANCER OF THE RECTUM.

ITS PATHOLOGY, SYMPTOMATOLOGY AND TREATMENT.

By W. ERNEST MILES, F.R.C.S.,

Surgeon Emeritus (with beds) to the Cancer Hospital; Surgeon to the Gordon Hospital for Diseases of the Rectum, &c.

80 pp. and 33 plates, bound cloth. 7s. 6d. net, post free 7s. 10d.

"It is the best exposition of the subject with which we are acquainted."—BRITISH JOURNAL OF SURGERY.

"Deserves to rank as a classic in the literature dealing with cancer of the rectum."—BULLETIN THE JOHNS HOPKINS HOSP.

"Perhaps no surgeon of to-day has had a greater experience in treating cancer of the rectum."—SURGERY, GYNECOLOGY, AND OBSTETRICS.

Harrison & Sons, Ltd., 44, St. Martin's-lane, London, W.C.2.

Large 8vo. With 71 Fully Coloured Cystoscopic Appearances, many Pyelograms, and other Illustrations. 25s. net. Postage 9d.

CYSTOSCOPY. A THEORETICAL AND PRACTICAL HANDBOOK. By JAS. B. MACALPINE, F.R.C.S., Hon. Surg. and Surg.-in-charge Genito-Urinary Dept., Salford Royal Hospital.

"*A remarkable achievement . . . one of the best monographs we have ever read.*"—BRIT. JOUR. SURG.

Bristol: John Wright & Sons Ltd. London: Simpkin Marshall Ltd.

NOW READY. 4/6 net.

THE TREATMENT OF

CHRONIC DEAFNESS

BY THE ELECTROPHONOIDE METHOD OF ZUND-BURGUET.

By GEORGE C. CATHCART, M.A., M.D.,

Consulting Surgeon to the Throat Hospital, Golden-square.

Oxford University Press, Amen House, London, E.C.4.

THE TREATMENT OF VARICOSE VEINS BY INTRAVENOUS INJECTIONS.

By JOHN D. P. McLATCHIE, M.D., C.M.

Second Edition. Crown 8vo. 3s. 6d. net.

PRESCRIBER.—"The author's own experience is given in detail and in a very practical manner, and the book should prove very useful to the general practitioner."

Wm. Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

ESSENTIALS OF MEDICAL ELECTRICITY

By ELKIN P. CUMBERBATCH. M.A., B.M.(Oxon.), D.M.R.E.(Camb.). SIXTH EDITION, REVISED AND ENLARGED. Demy 8vo. 459 pages, including 11 plates and 116 illus. Cloth. Price 10/6 net. Postage 9d.

Henry Kimpton. 263, High Holborn, London, W.C.1.

PRACTICAL PSYCHOTHERAPY.

THERAPY OF PERSONAL INFLUENCE.

By EDWIN HOPEWELL-ASH, M.D. An A.B.C. of Treatment by Personal Influence, Suggestion and Medical Hypnosis. Obtainable from BM/ELHA, London, W.C.1. 2/9 post free.

SECOND ENLARGED EDITION. With an additional plate at 15s. net; post free, inland 15s. 9d., abroad 16s. 6d.

CONTRACEPTION

ITS THEORY, HISTORY AND PRACTICE.

A Manual for the Medical and Legal Professions and all Social Workers.

By MARIE CARMICHAEL STOPES, D.Sc.,

Fellow of University College, London.

Introduction by the late Prof. Sir WILLIAM BAYLISS, F.R.S.

Introductory Notes by Sir JAMES BARR, M.D., Dr. C. ROLLESTON, Dr. JANE HAWTHORNE, and "Obscurus."

A few press opinions of the 1st Edition:

MEDICAL TIMES.—"The book is unique and marks a new era."

THE LANCET.—"Much of the evidence contained in the book is quite unobtainable elsewhere."

Sir Archdall Reid in NATURE.—"Some such book as this had to be written and this is very well written."

MED. REV.—"Should be read by all interested in racial welfare." This book is the first manual on the subject, and is packed with both helpful and interesting matter and much that is new and noteworthy.

London: John Bale, Sons & Danielsson, Limited, 83-91, Great Titchfield-street, Oxford-street, W. 1.

Arey's Developmental Anatomy

"*Professor Arey has published a text-book which includes more post-natal development than most other manuals of embryology. The outline presented of the more important developmental changes manifested after birth is a very valuable addition. . . . Professor Arey is to be congratulated on the production of a text-book of embryology which may be highly recommended and is likely to be used very widely.*"—BRIT. MED. JOUR.

By LESLIE BRAINERD AREY, Professor of Anatomy at the Northwestern University Medical School, Chicago. Octavo of 433 pages, with 419 illustrations, many in colours. Cloth, 27s. 6d. net.

Babcock's Text-Book of Surgery

"*Takes a distinguished place among the many general text-books that are available. It is designed both for the student and the practitioner, as the author believes that, with the increase of clinical teaching and the declining importance of systematic lectures, the student must turn more to his reading for his theoretic background.*"—BRIT. MED. JOUR.

By W. WAYNE BABCOCK, M.D., Professor of Surgery, Temple University, Philadelphia. Octavo of 1,367 pages, with 1,050 illustrations, 9 in colours. Cloth, 45s. net.

W. B. SAUNDERS COMPANY Ltd., 9, Henrietta St., LONDON, W.C.2

Controlled Irradiated Products

IN view of the existence of irradiated products of unknown activity, it is of importance to the medical profession to make use, in vitamin therapy, only of products which have been accurately standardized and have been prepared under scientifically-controlled conditions.

The British Drug Houses Ltd. issue their three well-known vivamin products RADIOSTOL, RADIOSTOLEUM and RADIO-MALT as medicinal substances with *definite guaranteed antirachitic potencies*. These products are sold only by qualified chemists and druggists.

RADIOSTOL

RADIOSTOL (Vitamin D). Biologically standardized so that 1 c.c. of the solution exercises the antirachitic effect of three ounces of high-grade cod liver oil.

Radiostol Solution contains 10,000 *antirachitic units per c.c.*
Radiostol Pellets contain 6,000 *antirachitic units per pellet.*

RADIOSTOLEUM

RADIOSTOLEUM (Vitamins A and D). Biologically standardized to contain twenty times the anti-infective Vitamin A activity of high-grade cod liver oil.

Radiostoleum contains 10,000 *antirachitic units per c.c.*
Radiostoleum Capsules contain 4,000 *antirachitic units per capsule.*

RADIO-MALT

RADIO-MALT (Vitamins A, B_1, B_2, and D). Biologically standardized at a strength to provide prophylactic doses of the four vitamins.

Radio-Malt contains 1,000 *antirachitic units per ounce.*

THE BRITISH DRUG HOUSES LTD LONDON

Vit.Pr/89

THE LANCET

No. 5556. LONDON, SATURDAY, FEBRUARY 22, 1930. CCXVIII.

CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

HUNTERIAN ORATION on Hero Worship in Surgery. By Prof. E. W. HEY GROVES, F.R.C.S.—(*Illustrated*) 387

ORIGINAL ARTICLES.

Human Infection in Psittacosis. By A. P. THOMSON, M.R.C.P. With Bacteriological Reports by W. T. HILLIER, M.R.C.S. 396

Disability following Certain Fractures. By A. J. COKKINIS, F.R.C.S. 402

CLINICAL AND LABORATORY NOTES.

Aneurysm of the Heart. By W. S. R. THOMAS, M.B. 405

Ganglionic Neuroma of the Mediastinum. By W. C. HARVEY, M.D.—(*Illustrated*) 405

MEDICAL SOCIETIES.

Royal Society of Medicine: Section of Therapeutics and Pharmacology: Uræmia 407
Section of Neurology: Nervous Symptoms and Nervous Lesions 408

Royal Statistical Society: Vaccination Problem ... 410

REVIEWS AND NOTICES OF BOOKS.

Mobilization of Ankylosed Joints by Arthroplasty. By W. R. MacAusland, M.D., and A. R. MacAusland, M.D. 413

Heredity and Parenthood. By S. C. Schmucker, Sc.D. 413

Études Neurologiques. Troisième série. By Prof. G. Guillain..... 413

Immunisation locale contre la tuberculose par voie cutanée. By J. Dekker . 413

Lippincott's Pocket Formulary. By G. E. Rehberger, M.D. 414

LEADING ARTICLES.

SURGICAL ACCESS TO THE CHEST 415

SLUM CLEARANCE AND THE RATING SYSTEM..... 416

THE TREATMENT OF URÆMIA 416

ANNOTATIONS.

Another Scottish Milk Experiment 417
The Hickman Memorial .. 417
Maternal Mortality in Australia..... 418
Tetrachlorethylene and Hookworms 418
Prostitution in New York 419
Eye Diseases in China.... 419
The Third Hastings Lecture 420
The Growth of Children.. 420
Social Hygiene 420
The Definition of Drugs for Purposes of Medical Benefit 421

MODERN TECHNIQUE IN TREATMENT

Treatment of Benign Uterine Hæmorrhage at the Menopause. By LOUISA MARTINDALE, M.D., B.S. 422

REPORTS AND ANALYTICAL RECORDS.

The Germicidal Action of Dimol Intestinal Antiseptic.—(*Illustrated*) 414

THE SERVICES.

Royal Naval Medical Service.—Royal Army Medical Corps.—Royal Air Force.—Indian Medical Service.—Deaths in the Services 421

SPECIAL ARTICLES.

The Deaths of British Merchant Seamen in 1928. By Fleet Surgeon W. E. HOME 423

The Lower End of the Œsophagus. Dr. Mosher's Semon Lecture 424

Medicine and the Law: Manipulative Treatment and Pleurisy 425

Royal College of Surgeons of England: Hunterian Festival 426

Infectious Disease in England and Wales 406

CORRESPONDENCE.

The Case against the Widal Test (Dr. A. D. Gardner) 427

The Members and the Council of the Royal College of Surgeons of England (Mr. Ernest E. Ware) 427

Laryngeal Papilloma Following Gassing (Mr. E. Watson-Williams) .. 428

Rest in the Treatment of Gonorrhœa (Dr. James B. Byles)..... 428

OBITUARY.

Jamieson Boyd Hurry, M.D.—(*With portrait*) .. 428

MEDICAL NEWS.

University of Oxford..... 429
University of London: University College..... 429
County Nursing Associations 406
Glasgow Hospitals..... 412
A "Sun Room" at Southport 426
A New Durham County Hospital..... 426
St. Bartholomew's Hospital "Lighthouse" 426
Medico-Legal Society 429
Enlargement of Beckett Hospital, Barnsley 429
Hospitals in East Africa.. 429
University College Hospital Medical School..... 429
University College Hospital 429
Royal College of Surgeons of England 429
London Association of the Medical Women's Federation..... 430
Hunterian Society..... 430
Royal London Ophthalmic (Moorfields) Hospital 430
Rheumatism Clinic in Bermondsey 430
St. Martin's Orthopædic Hospital 430
Wood's Hospital, Glossop 430
University of Sydney..... 430
Federation of the Health Resorts of France 430
An Overcrowded Poor-law Hospital 430
Village Settlements for Tuberculous Men..... 430
Resignation of Mr. H. A. Lediard 430

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics: Mental Treatment Bill .. 431
House of Commons: Notification of Cancer.—Death from Anthrax.—Diagnosis and Treatment of Silicosis.—Psittacosis. Dietary and Dental Decay.—Dogs and Vivisection Experiments.——Pasteurised Milk and Tubercle Germs.—Certified and Grade A Milk and Tuberculosis.—Punishment by the "Cat."—Humane Slaughter of Animals .. 435

NOTES, COMMENTS, AND ABSTRACTS.

Estimation of Dangers of Avertin 438
Half-minute Thermometry 438
Doctors' Consulting Rooms at Chemists' Shops in South Africa 438
Metalix Tubes 438
Manic-Depressive Psychosis 438
A Thermo Radio Pad 438

Medical Diary 436
Appointments 437
Births, Marriages, Deaths 437
Vacancies 437

LEWIS'S PUBLICATIONS.

EIGHTH Edition. 2 Plates and 91 other Illustrations. Demy 8vo. **21s.** net; postage 9d.

HYGIENE AND PUBLIC HEALTH
(PARKES AND KENWOOD).

Revised by **HENRY R. KENWOOD**, C.M.G., M.B., F.R.S. Edin., D.P.H. Lond., and **HAROLD KERR**, O.B.E., M.A. Dunelm, M.D. Edin., D.P.H. Camb.

"Here we have a quarry of concise information valuable to students and practical workers, a bargain at the price asked for it."—*British Medical Journal.*

14 Coloured Plates and 435 Illustrations. Royal 8vo. **£2 10s.** net.

DISEASES OF THE SKIN
A Textbook for Students and Practitioners.

By **J. M. H. MACLEOD**, M.A., M.D., F.R.C.P.

"... singularly complete. ... a credit to British Dermatology."—*British Medical Journal.*

FIFTH Edition. 11 Plates and 76 other Illustrations. Demy 8vo. **21s.** net; postage 9d.

MIND AND ITS DISORDERS
A Text-book for Students and Practitioners

By **W. H. B. STODDART**, M.D. Lond., F.R.C.P.

"... ranks high among Standard English works. It is written in a clear, concise style."—*The Lancet.*

With 130 Illustrations. Demy 8vo. **18s.** net; postage 9d.

A SHORTER ANATOMY
With Practical Applications.

By **E. WOLFF**, M.B., B.S. Lond., F.R.C.S. Eng.

"... gives accurate information in a simple and lucid way."—*The Lancet.*

London: H. K. LEWIS & CO. LTD., 136 Gower Street & 24 Gower Place, W.C. 1.
Telegrams: "PUBLICAVIT, EUSROAD, LONDON." Telephone: MUSEUM 7756 (3 lines).

OLIVER & BOYD'S RECENT PUBLICATIONS

Requisites and Methods in Surgery

For the use of Students, House Surgeons, and General Practitioners. By CHAS. W. CATHCART, C.B.E., M.A., M.B., C.M. (Ed.), F.R.C.S. (Eng. and Ed.), Consulting Surgeon, Royal Infirmary, Edinburgh; and J. N. JACKSON HARTLEY, O.B.E., M.B. (Ed.), F.R.C.S. (Eng. and Ed.), Surgeon, Cumberland Infirmary, Carlisle.
Crown 8vo. 484 pages with 246 Illustrations. Price **12s. 6d.** net.

The Common Diseases of the Skin

A Handbook for Students and Medical Practitioners. By R. CRANSTON LOW, M.D., F.R.C.P., Lecturer on Diseases of the Skin, Univ. of Edinburgh, and Physician to the Skin Department, Royal Infirmary, Edinburgh. With 68 Illustrations, including 8 full-page Plates in colour. Crown 8vo. 236 pages. Price **14s.** net.

The Clinical Study and Treatment of Sick Children

By JOHN THOMSON, M.D., LL.D., F.R.C.P. (Ed.), Consulting Physician to the Royal Edinburgh Hospital for Sick Children. *Fourth Edition, Rewritten and Enlarged.* With 258 Illustrations. Medium 8vo. 944 pages. Price **30s.** net.

Fascial Grafting in Principle and Practice

An illustrated Manual of Procedure and Technique. By H. C. ORRIN, O.B.E., F.R.C.S. (Edin.), Late Surgeon, Craigleith Hospital, Edinburgh; Ministry of Pensions Orthopædic Hospital, Newcastle-on-Tyne; Late Civil Surgeon, 3rd London General Hospital and Weir Hospital, London. Medium 8vo. With 21 full-page Plates. Price **7s. 6d.** net.

Exophthalmic Goitre

By JOHN EASON, M.D., F.R.C.P.E., Physician, Royal Infirmary Edinburgh. Medium 8vo. 228 pages with 34 Illustrations Price **12s. 6d.** net.

Pulmonary Tuberculosis: Its Diagnosis and Treatment

A Handbook for Students and General Practitioners. By JOHN GUY, M.D., D.P.H. (Camb.), F.R.F.P. & S. (Glas.), F.R.C.P. (Edin.), Deputy Medical Officer of Health and Tuberculosis Officer for the City of Edinburgh; Lecturer on Tuberculosis, School of Medicine of the Royal Colleges, Edinburgh. Medium 8vo. 320 pages with 51 Illustrations. Price **16s.** net.

Edinburgh: Tweeddale Court. London: 33 Paternoster Row, E.C.

SPEECH CO-ORDINATION

Advice, diagnosis and latest methods of treating STAMMERING and all SPEECH DISORDERS.

ERIC J. MIALL, A.L.C.M.,
Instructor, the Middlesex Hospital, London.
Welbeck 3238. 39, WELBECK ST., W. 1.

STAMMERING, SPEECH DEFECTS

BEHNKE METHOD. Estab. 1881. CASES, non-resident, treated at 39, Earl's Court Square, S.W.5, and, in residence, in the Summer holidays at Miss Behnke's house on the Chilterns.
"Pre-eminent success in the education and treatment of stammering and other speech defects."—*The Times.*
"Thoroughly physiological principles."—*The Lancet.*
"The method is scientifically correct and perfectly effective."—*Guy's Hospital Gazette.*
STAMMERING CLEFT PALATE, SPEECH LISPING." 3s. 9d. of Miss BEHNKE, 39, Earl's Court Square, S.W.5.

"GAMGEE TISSUE"

Sole Proprietors and Manufacturers:
ROBINSON & SONS, Limited.
Chesterfield

KOLYNOS
DENTAL CREAM
THE PREMIER DENTIFRICE

Just Published. SECOND EDITION. Fully Revised and Enlarged. Large 8vo. 380 pages. With 306 Illustrations, some of which are in colour. **21s.** *net. Postage 6d.*

DEMONSTRATIONS OF
PHYSICAL SIGNS IN CLINICAL SURGERY
By HAMILTON BAILEY, F.R.C.S.Eng.,
Surgeon, Dudley Road Hospital, Birmingham.

"It is time that a book of this nature was available in English . . . The author is to be congratulated upon the success with which he has carried out his task. A feature of the book is the abundance of illustrations, all of which, in addition to the excellence of reproduction, are informative."—THE LANCET.

"An admirable book which we can recommend to all students."—BRIT. JOUR. SURG.

"*We have nothing but praise for this book*, which should be in the hands of every student."—EDIN. MED. JOUR.

THIRD LARGE IMPRESSION. Cr. 8vo. 168 pages. **7s. 6d.** *net. Postage 4d.*

THE ELEMENTS OF
MEDICAL TREATMENT
By ROBERT HUTCHISON, M.D., F.R.C.P.,
Physician to the London Hospital.

"A model of brevity, clearness, and sound judgment."—BRIT. MED. JOURN.

ALSO BY THE SAME AUTHOR.
Crown 8vo. **2s. 6d.** *net. Postage 2d.*

SOME PRINCIPLES OF
DIAGNOSIS, PROGNOSIS, and TREATMENT

"There can seldom have been more interesting and shrewdly worded advice than that closely packed in these pages."—BRIT. MED. JOURN.

Bristol: JOHN WRIGHT & SONS Ltd. *[Illustrated Catalogue free.]* **London: SIMPKIN MARSHALL Ltd**

DE-LUXE CRUISING
By the World's Most Delightful Cruising Liner
"ARANDORA STAR"

No liner in the world so effectively combines charm with comfort and luxury. Every Stateroom a Cabin-de-Luxe. Glorious clear Games Decks. Restful Sun Deck. Open-air Swimming-pool, etc.

To the MEDITERRANEAN Cruise this Spring by the "Arandora Star," which is making five separate cruises—to places such as Algeria, Tunis, Corsica, Venice, Athens, etc., blue skies, health and enjoyment all the time.

Early reservations, including for Norway and Northern Capitals in summer, secure the choice of accommodation.

BLUE STAR LINE
3, Lower Regent St., London, S.W.1 (*Ger* 5671), *& all Principal Tourist Agents*

Hunterian Oration

ON

HERO WORSHIP IN SURGERY.

Delivered in the Royal College of Surgeons on Feb. 14th, 1930,

BY ERNEST W. HEY GROVES, F.R.C.S.,

PROFESSOR OF SURGERY IN THE UNIVERSITY OF BRISTOL.

"One comfort is, that Great Men, taken up in any way, are profitable company. We cannot look, however imperfectly, upon a great man, without gaining something by him"—*Carlyle, "Hero Worship."*

MY LORD, LADIES AND GENTLEMEN,—We have met to-day on the birthday festival of John Hunter, one of the greatest heroes of English surgery.

Considerably more than a century has elapsed since in 1814 this Oration was founded by Hunter's executors, Dr. Matthew Baillie and Sir Everard Home, "in honour of surgery and in memory of men by whose labours it has been advanced."

In pursuance of this bequest the Oration has now been delivered 75 times, 38 of which have been in the present theatre. Of these, 68 have been published and are now in our library. It would be presumptuous on the part of the present speaker to utter one word without having first read all these published orations. They now cover a sufficient period of time (1814 to 1928), and that a period of the greatest growth and activity in surgery, to make their perusal one of great interest and instruction, especially in marking notable landmarks in the history of surgery and this College.

NOTES OF THE PREVIOUS ORATIONS.

EVERARD HOME, *1814.*—Wiseman as founder of surgery in 1660. Emancipation of surgery from medicine. Knowledge of anatomy chief advance in surgery. Cheseldon: anatomy, lithotomy. Pott, Hunter: anatomy. General principles of animal life. The importance of experiment.

SIR WILLIAM BLIZZARD, F.R.S., *1815*, Surgeon to the London Hospital.—General reflections on surgery and its relation to anatomy. Harrison: first surgeon and founder of London Hospital. Belchier, Sharpe, Hawkins, Cheseldon, Pott, Bromfield, Warner, Thomson. Compare Newton with Hunter. Relation of life to matter.

HENRY CLINE, *1816.*—Not published.

WILLIAM NORRIS, *1817*, Master of the College, Surgeon to Charterhouse and Magdalen Hospital.—Early teachers: Hippocrates, Celsus. John Arden, Leader of surgery during the Renaissance. Traces beginning of improvement in modern surgery to the regular teaching of anatomy. William Hunter, Percival Pott: "In London there are seven large Hospitals." Life work of John Hunter. His Museum.

SIR DAVID DUNDAS, Bt., *1818*, Sjt. Surgeon to H.M. King George III.—Ancient teachers. First effect of firearms. Appearance of venereal disease. Paré: use of ligatures instead of caustics or cautery. Wiseman, Cheseldon, Pott. Hunter on gunshot wounds—not necessary to enlarge such wounds without special reason. Work about popliteal aneurism. Hunter's doctrines of the nature of life. Eulogy on George the Third in relation to encouragement to science and surgery. Obituary notice of Sir James Earle. Improvements in extracting cataract and in treating hydrocele. "If at any former time surgeons . . . allowed themselves to be under the control of physicians that is not likely to happen again."

JOHN ABERNETHY, F.R.S., *1819*, Surgeon to St. Bartholomew's Hospital.—The nature of surgery. Early history of surgery. Rise of the Barber surgeons. Haller's work as a physiologist. Plea for greater facilities for getting bodies for dissection; also for post-mortem examinations. "Those who far precede others must necessarily remain alone." "His disposition to distrust opinions and to examine every subject for himself." Eulogy of Hunter's character and benevolence.

ANTHONY CARLISLE, F.R.S., *1820*, Surgeon to Westminster Hospital, Surgeon Extraordinary to H.M. George IV.—Obituary notice of Will Hey. A very eloquent—rather pompous—eulogy of Hunter, but going out of the way to point out his lack of learning, of languages and science.

THOMAS CHEVALIER, F.R.S., *1821*, Surgeon Extraordinary to King George IV., Professor of Surgery and Anatomy to the College.—History of Surgery, life and work of Hunter. Refers to treatment of chronic ulcer of the leg, and to Underwood, Bayntum, Sir Joseph Banks, Cuvier.

SIR EVERARD HOME, Bt., P.R.C.S., *1822*, Senior Surgeon to St. George's Hospital.—Refers to granting by George the Fourth of new Charter and the raising of the College to the status of a Royal College. Account of life and works of Sir Joseph Banks, who accompanied Captain Cook round the world (Vice-President of Royal Society).

SIR WM. BLIZZARD, P.R.C.S., *1823*, Surgeon to the London Hospital.—Preface repudiates fear that the subjects for Hunter's Oration would soon be exhausted! Deplores the prevalence of practice by unqualified surgeons. Sir Joseph Banks, Sir Charles Blicke, Sir James Earle, Mr. Long, Mr. Keate, Mr. James Wilson, Mr. Chandler, Mr. Hey, Dr. Jenner. "The Council of this College are unshaken in their confidence in the efficacy of vaccination."

HENRY CLINE, *1824.*—Not published.

WILLIAM NORRIS, P.R.C.S., *1825*, Surgeon to Charterhouse and Magdalen Hospitals.—On medical education. The Hunterian Collection.

SIR ANTHONY CARLISLE, F.R.S., *1826*, Surgeon to H.M. King George IV. and to Westminster Hospital.—Arguments in favour of study of zootomy and animal anatomy. Description of the oyster and discussion on the formation of shell, teeth, and bones.

H. LEIGH THOMAS, F.R.S., *1827.*—Life and work of Cruikshank, his anatomical researches. Of Hunter he says: "The calibre of whose capacious mind, not being circumscribed by devotion to received opinions, studied solely the book of Nature."

SIR WM. BLIZZARD, *1828*, Senior Surgeon to the London Hospital.—Again deplores the practice of unqualified surgery. He argues against the establishment of special military and also of ophthalmic hospitals. Obituary of Shaw, Harkness, Wm. Norris.

JOHN VINCENT, *1829*, Surgeon to St. Bartholomew's Hospital.—"The measure of excellence in man is discovered in his aptitude to be governed by the power of truth." "One of the most powerful influences that retard the advancement of science is opinion. Opinion is the admission of a proposition without proof." Obituary notices of Heaviside, Macgregor, and Long.

GEORGE JAMES GUTHRIE, *1830.*—Not published.

ANTHONY WHITE, *1831.*—Not published.

SAMUEL COOPER, *1832*, Professor of Surgery to the University of London, Surgeon to the Bloomsbury Dispensary.—"The noble and opulent—as the patrons and dupes of murderous quackery." Appreciation of Hunter. Historical retrospect. Obituary of John Abernethy and Headington.

JOHN HOWSHIP, *1833*, Surgeon to St. George's Infirmary.—Historical retrospect. Comments on Hunter's Museum. Obituary notices of Abernethy, Sir Everard Home, and Baron Cuvier.

SIR WILLIAM LAWRENCE, F.R.S., *1834*, Surgeon to St. Bartholomew's Hospital.—History of Hunter. Adverse criticism of his work on venereal disease. Refers to Museum, Hunter's specimens 7833.* Additions 3951. Refers to the distribution of his MSS. and to Abernethy and Cuvier.

1835 and *1836.*—No Orations.

SIR BENJAMIN BRODIE, Bt., F.R.S., *1837*, Sjt. Surgeon to the King, Surgeon to St. George's Hospital.—Regards treatise on blood and inflammation as Hunter's most important work. First instance of inductive method of philosophy applied to pathological science. "He loved knowledge for its own sake." Obituary notices of Sir Everard Home, Sir W. Blizzard. Refers to the completion of the new building.

BENJAMIN TRAVERS, F.R.S., *1838*, Surgeon Extraordinary to H.M. the Queen, Surgeon to St. Thomas's Hospital.—Hunterian eulogy. Obituary of Henry Earle. "If to have lived in advance of the time be, as has been said, the truest test of genius, let Hunter be tried by this standard."

EDWARD STANLEY, F.R.S., *1839*, St. Bartholomew's Hospital.—"The successful treatment of aneurism, to be reckoned the fairest of the fruits of Hunter's genius." Refers to Hunter's first and third cases who lived 40 years after the operation. Later surgical advances. Lithotrity, tenotomy for congenital deformities. Treatment of fractures by apparatus, which fixed the fracture but allowed movement of the limb. Thomas Blizzard and Swan.

JOSEPH HENRY GREEN, F.R.S., *1840*, Surgeon to St. Thomas's Hospital.—Obituary notice of Henry Coleman. Discourse on medical philosophy. Bacon's deductive logic. Hunter's vital dynamics. "He

brought the whole art of healing into immediate connexion with the speculative sciences of Nature." Evolution of the idea of power. Transcendental anatomy. Gradation of animal life. Characteristics of man's bodily frame. Hunter's pathology. Ideas of instinct.

THOMAS CALLAWAY, *1841.*—Not published.

G. C. BABINGTON, *1842*, Surgeon to St. George's Hospital.—Obituary of Sir Astley Cooper. "John Hunter's discoveries are great in themselves; but their true value is to be found in the number of other discoveries to which they have given birth." Hunter as an exponent of the Baconian philosophy.

JAMES ARNOTT, *1843*, Surgeon to the Middlesex Hospital.—Obituary notice of Sir Charles Bell, his work on the nervous system. Lairey who instituted mobile ambulances and rose with the rise of Napoleon. Hunter's Museum. Work on Aneurism, refers to 389 cases with 277 successes.

JOHN F. SOUTH, *1844.*—Not published.

1845.—No Oration.

SIR WILLIAM LAWRENCE, F.R.S., *1846*, Surgeon Extraordinary to the Queen, Surgeon to St. Bartholomew's Hospital.—Refers to Jenner's discovery as arising out of his education by Hunter. Hunter's specimens numbered 10,563,* and to these had been added 12,347. Refers to Mr. Paget being appointed to write the catalogue of the pathological specimens. Foundation and origin of the Royal College of Surgeons; the Museum and Library. Heated defence of the policy of the R.C. of Surgeons and criticism of the suggested "Royal College of General Practitioners."

JOSEPH HENRY GREEN, *1847*, Surgeon to St. Thomas's Hospital.—Refers to the recent institution of the Fellowship. The foundation of a liberal education. Language, literature, mathematics, natural history. The cultivation of scientific insight. Value of a University education.

RICHARD GRAINGER, F.R.S., *1848*, Surgeon to St. Thomas's Hospital.—The recent scientific advance of anatomy and physiology. Embryology: development of the mammalian ovum. The dependence of function on structure. Microscopical anatomy. The nature of secretion. Physiology based on physics and chemistry. Obituary notices of Liston and Morgan.

CÆSAR H. HAWKINS, *1849*, Surgeon to St. George's Hospital (Prince Albert present).—States that the pathological specimens in the Museum had doubled in number. Library contained 23,000 volumes. Obituary notices of Briggs, Callaway, Samuel Cooper. Progress in physiology—excretion and secretion. Humoral pathology. Discovery of anæsthesia. Notes increasing international coöperation in science, but suggests that there is urgent need for similar coöperation in regard to experience and statistics among hospitals.

FREDERICK C. SKEY, F.R.S., *1850*, St. Bartholomew's Hospital.—Obituary of Clift who had preserved the Hunterian Collection until it was taken over by the R.C. of Surgeons. Also of Key, Andrews, Morton (Newcastle), Pennington. "The profession of medicine is at the present day a degenerate pursuit." Want of education, ignorance of classics and of science. Urges the need of preliminary education. Deplores the system of apprenticeship. "The degenerate standard of medical ethics." "The law only allows the doctor to be remunerated for selling physic."

R. A. STAFFORD, *1851.*—Printed but not delivered. Jenner, Dr. Baillie, Abernethy, Astley Cooper, Clift, Samuel Cooper, Charles Bell, Earle.

JAMES LUKE, *1852*, Senior Surgeon to the London Hospital.—Obituary of Vincent. Importance of education. Hunter's philosophy and his Museum.

BRANSBY COOPER, F.R.S., *1853*, Surgeon to Guy's Hospital.—Describes Hunter's work, illustrated by specimens from the Museum. Obituary notices of Vincent, Dalrymple, Pereira, Sir Charles Forbes, Sir John Webb, Lawrence, and Dr. Mantell. The first occasion when the Oration was given in the present theatre.

1854.—No Oration.

JOSEPH HODGSON, F.R.S., *1855.*—Examination of Hunter's teaching. "The founder of scientific physiology." An appreciation of Jenner who saved 80,000 lives each year.

THOMAS WORMALD, *1858.*—Hunter's work on inflammation of veins and in curing aneurism. Mentions that Prof. Owen had left the R.C. and S. for the British Museum.

JOHN BISHOP, *1859*, Surgeon to the Northern Dispensary.—Museum contained 45,000 preparations, of which 14,000 were microscopic. Obituary notices of Keate, Travers. Improvements in microscope. Pathology of inflammation. Work of Virchow and Lister. Ollier's work on the periosteum. New Medical Act. Advances in physiology, chiefly in relation to the nervous system.

WILLIAM COULSON, *1861.*—Refers to the fact that Hunter's remains had been transferred to Westminster Abbey. "As he had laid the foundation of scientific surgery so did he found what I venture to term physiological pathology."

GEORGE GULLIVER, F.R.S., *1863.*—Hunter's ideas of the blood. Doctrine of fibrin and its nature. Obituary notices of Quekett, Norman, Stanley, Brodie, Hewson.

1865.—Not published.

JOHN HILTON, F.R.S., *1867*, Surgeon to Guy's Hospital.—Chiefly a discussion of Hunter's doctrines of sympathy (one diagram from Hunter).

RICHARD QUAIN, F.R.S. and P.R.C.S., *1869.*—Hunter and his Museum. Arrest of medical progress in dark ages ascribed to the abuse of authority in education. Criticism of English school and University education. Folly of spending most time on dead languages. Plea for good teaching of English language and of natural science.

SIR WM. FERGUSSON, P.R.C.S., F.R.S., *1871*, Surgeon to the Queen.—Hunter's life and Museum. Four illustrations of grafting. Hunter's experiments on spurs and teeth grafted on cock's comb. Obituary notices of Wardrop, Sir W. Lawrence, Hodgson, Sir James Simpson, James Syme.

HENRY HANCOCK, *1873*, Surgeon to Charing Cross Hospital.—Obituary notice of Skey, Sir James Palmer, Sir John Fife, Solly, Parker, Kempe, Delagrade, Carden, Poland, Coote. Considers that the lack of education was no bar to Hunter's progress. Recites the many men of genius who have been in like circumstances. Criticises the examination system. Thinks it would have kept Hunter out.

LE GROS CLARK, F.R.S., *1875*, Surgeon to St. Thomas's Hospital.—Obituary notices of Partridge, Jordan, Bishop, Cutcliffe, Turner, Wormald, Wyatt, Cutler, Swan, Martin, Kierman. Refers to proposed coöperation with Royal College of Physicians for Conjoint examination. Conservative tendency of surgery. Importance of rest. Water more useful than drugs. Excision of joints. Excision of cancer. "I feel persuaded that the antidote to this malignant disease must be sought in therapeutics and hygienic measures." Deplores that the printing and illustrating of books substitutes reading for dissection and clinical observation. "A love of truth was the mystic altar before which he ever knelt, the energising impulse which determined and regulated his every aim and purpose, the guiding star of his existence."

SIR JAMES PAGET, *1877*, Surgeon to St. Bartholomew's Hospital (before the Prince of Wales).—"The happiness of intellect is in its work." "The desire for knowledge, both for its own sake and for the happiness of gaining it and using it became like an insatiable passion." "For Hunter's true thoughts still live in us and they will live after us and never cease to help and urge men onward in the pursuit of truth." "In the world of mind he that is mortal may produce that which is immortal." Obituary notice of Sir Wm. Fergusson.

GEORGE MURRAY HUMPHRY, *1879* (Cambridge).—Two salient, all-pervading features, which may be expressed by the words "work" and "thought," or "observation" and "reflection." First mention of antiseptic treatment of wounds. Spencer Wells and Keith's establishment of ovariotomy. The urgent need of experimental research. The difficulties raised by opponents of experiment. True principles of teaching should be to give facts which lead to and establish principles. Growth of knowledge—danger of cramming. Danger of examinations. Obituary notice of John Hilton, George Firth.

LUTHER HOLDEN, *1881*, Surgeon to St. Bartholomew's Hospital.—Throws doubt on the alleged lack of education. Thinks Hunter was at school and then at Glasgow University, and studying with Cullen before he went to London. Tribute to Hunter as an anatomist, comparative anatomist, physiologist, and pathologist. Plea for classic education. Obituary notice of Henry Hancock, Callender.

SPENCER WELLS, P.R.C.S., *1883.*—Obituary notices of Luke, South, Gulliver, George Crichett (progress in ophthalmology). Joseph Clover (anæsthesia), and many others less known. Progress in military and naval surgery. Transport of wounded. Advantages of anæsthetics and antiseptics. Progress of abdominal surgery. Deplores the difficulties and restrictions placed in the way of experiments. First reference to bacteria. Cheyne visiting Koch and working on tubercle. Work of Pasteur and Devine on microbes. "We support the law which protects the many from the danger to which a few ignorant opponents of compulsory vaccination would expose the whole popula-

tion." Thirty diseases in man and animals proved to depend upon specific microbes.

JOHN MARSHALL, F.R.S., *1885*, Surgeon to University Hospital.—Obituary notices of Allen Thomson, Cæsar Hawkins, Erasmus Wilson. After a sketch of John Hunter's life he attempts to estimate his opinion in regard to modern developments. Would resent restrictions on experiment. Was on the same idea as Darwin. Variation in species and stages of embryo showing same changes as in race. Anæsthetics and antiseptics.

WILLIAM S. SAVORY, F.R.S., *1887*, Surgeon to St. Bartholomew's Hospital.—The philosopher of surgery. The idea of the unity of design. "He effected more by the nature of the questions which he set than by the answers which he worked out." "Is not surgery itself then as a science in danger from the extension of surgery as an art?"

HENRY POWER, *1889*, Surgeon to St. Bartholomew's Hospital.—Hunter as a physiologist and experimenter. The value and results of recent physiological experiments. "The experiment and researches of Sir J. Lister." The new rooms devoted to research.

JONATHAN HUTCHINSON, F.R.S., *1891*, Surgeon to the London Hospital.—Obituary notices of Matthews Duncan, John Marshall. Claim for reference to mother in tracing character. Great estimate as a naturalist and philosopher. Poor opinion of his writings on venereal disease. Considers that knowledge of geology shown in his catalogue of fossils as very remarkable as being before his time.

THOMAS BRYANT, *1893*, Surgeon to Guy's Hospital (given before H.R.H. the Prince of Wales and H.R.H. the Duke of York).—Obituary notices of Prescott Hewitt, John Wood, Berkely Hill, Sir Wm. Bowman, Charles Hawkins, Le Gros Clark, Edward Cock, Samuel Lane, Alfred Baker, Sir Richard Owen, aged 87.

J. W. HULKE, *1895* (died on Feb. 19th; the Oration read by Thomas Bryant).—Hunter as a biologist. Movement of sensitive plants. Classification of animals.

CHRISTOPHER HEATH, *1897*, Surgeon to the University College Hospital.—Hunter's greatness as a surgeon. Reply to Jesse Foot. Work on aneurism and on venereal disease. Obituary notices of Hulke, Savory (refers to the early days of member's agitation for share in the government of the College). Durham, Erichsen, Humphrey, Spencer Wells.

SIR WM. MACCORMAC, *1899*, Surgeon to St. Thomas's Hospital (before the Prince of Wales).—General account of John Hunter. "The surgery of the Middle Ages was a trade. Ambroise Paré and Jean Louis Petit converted it into an art; John Hunter elevated it to the rank of a science." Animal heat; cranial surgery; aneurism. Venereal disease. Inflammation. Gunshot wounds. The Museum. Anæsthetics. Antiseptics. "Lister has finally crowned the edifice whose cornerstone John Hunter laid." Obituary notices: Oliver Pemberton, Bailey (Librarian), Rivington, Lund (Manchester), Lee.

N. C. MACNAMARA, *1901*.—Refers to the death of Queen Victoria. Obituary notice: Sir James Paget. Craniology. Refers to Sir Wm. Lawrence's lectures as being the first reference to the idea of the common origin of man and ape. Description of typical skulls.

H. G. HOWSE, *1903*, Surgeon to Guy's Hospital (MSS. only). Life and work of John Hunter. The greatness of his work in associating structure with function. Recent specimens. Hairy rhinoceros from Siberia. Casts and specimens showing evolution of horse. Obituary notices of Spencer Smith, Sir Wm. MacCormac.

JOHN TWEEDY, P.R.C.S., *1905*.—Obituary notices of Luther Holden, John Birkett, John Simon. "The greatest men are estimated by the influence they exert upon the thoughts and activities of those who follow them." Defence of animal experiments.

HENRY T. BUTLIN, *1907*, Surgeon to St. Bartholomew's Hospital.—Obituary notice of Christopher Heath. Description of Hunter's life and work. "(The great man) should see clearly truths which are still hidden to ordinary mortals."

HENRY MORRIS, *1909*, Surgeon to Middlesex Hospital (before T.R.H. the Prince and Princess of Wales, also Lord Rosebery and nine ladies and gentlemen of the Court).—Obituary notices of Sir Jos. Fayrer, Timothy Holmes, Wm. Allingham, Reginald Harrison, Sir Alfred Cooper, Prof. Charles Stewart (Curator). Hunter as a philosopher. The inductive method. A history of the intellectual movements in England, Scotland, and France. The conflict of the deductive and the inductive philosophies in Hunter's work.

EDMUND OWEN, *1911*, Surgeon to St. Mary's Hospital.—John Hunter and his Museum. Early life of Hunter. In July, 1768, at a Court of Examiners, John Hunter was examined and received his diploma (aged 40). Elected as a member of the Court of Assistants (Council) in 1789. He attended 14 meetings out of 26. Description of Hunter's inoculation with venereal disease and its effect on his arteries and death. Appreciation of Hunter, Pasteur, Lister.

SIR RICKMAN GODLEE, *1913*, Surgeon to University College Hospital.—Attributes to him the thought "What is life?" in the portrait. Mentions that Clift only received seven shillings a week for seven years. Reproductions of famous pictures: Hunter, Clift, Owen, Quekett, Flower, Stewart, and also of several of Hunter's house, museum, &c. Original 13,600* of Hunter's specimens increased to 64,766. Description of Museum. Imagining Hunter's return. Plea for a modern "institute of anatomy and pathology." Obituary notices of Dent, Butlin, Lister. Compares Hunter and Lister, taking nothing for granted, always experimenting, "body, blood, and motion."

SIR WM. WATSON-CHEYNE, P.R.C.S., *1915*, Surgeon to King's College Hospital.—Treatment of gunshot wounds. The problem of antiseptics.

SIR GEORGE MAKINS, *1917*, Surgeon to St. Thomas's Hospital.—Hunter as a military surgeon. Treatment of gunshot wounds. Limitation of antiseptics. Aneurism. Simultaneous ligature of artery and vein.

SIR ANTHONY BOWLBY, P.R.C.S., *1919*, Surgeon to St. Bartholomew's Hospital.—British military surgery in the time of Hunter and in the Great War. Conditions of military surgery in days of Hunter compared with those during the Great War.

SIR CHARTERS SYMONDS, *1921*, Surgeon to Guy's Hospital.—Life and work of Sir Astley Cooper. Remarks on medical education. Plea for more clinical and less preliminary work.

SIR JOHN BLAND-SUTTON, *1923*, Surgeon to the Middlesex Hospital.—John Hunter—his affairs, habits, and opinions. A description of Hunter's work, chiefly as a biologist, with many interesting references to recent discoveries—e.g., the breeding of eels, the hearing of whales, and the early life of the kangaroo.

SIR D'ARCY POWER, *1925*.—Critical review of Hunter's illness with evidence of cerebral syphilis. Illustrations from Jesse Foot's life.

SIR BERKELEY MOYNIHAN, P.R.C.S., *1927*, Leeds (before H.R.H. Princess Mary).—Hunter's ideals and Lister's practice. The methods of the two great men and their results.

SIR HOLBURT WARING, *1928*, Senior Surgeon to St. Bartholomew's Hospital.—The progress of surgery from Hunter's day to ours.

Note.—The references to the Orations since 1913 are very brief, as these have been so recently published.

* The discrepancy between the figures given in 1834, 1846, and 1913, relating to the number of Hunter's specimens, is due to the fact that for years after Hunter's death further of his specimens came to light. Of these the largest group were the fossils, numbering 3709, found and described by Owen.

The controversial subjects referred to have been: the teaching of anatomy as the foundation of sound surgery; the emancipation of surgery from medicine; the problem of procuring bodies for dissection; the menace of quackery; and the agitation by Members of the College for a share in its government.

The chief matters of surgical advance have included: vaccination; scientific physiology and embryology; anæsthesia; bacteria and antiseptics; abdominal surgery and ovariotomy.

Notable stages in the advance of the College referred to have been: the granting of the Charter by George the Fourth; completion of the present building; foundation of the Fellowship; formation of the Conjoint Board; moving of John Hunter's remains to Westminster Abbey; and growth of the Museum from 13,600 specimens, bequeathed by Hunter to 64,766.

Six times the Oration has been delivered before members of the Royal Family, the first time by Cæsar Hawkins, before the Prince Consort in 1849, and the last by Sir Berkeley Moynihan in 1927, before the Princess Mary.

RECENT LOSSES.

When I undertook to deliver this Oration I had hoped to say that subsequent to 1913, its first centenary, all the orators were still with us, but now we have to deplore the death of Sir Anthony Bowlby,

K.C.B., K.C.M.G., K.C.V.O., who gave the Oration in 1919 and was our President from 1920 to 1922. Intimately known and dearly loved by all the Bart.'s students who came under his kindly supervision, a sound surgeon and a wise teacher, Bowlby during the time of the Great War reached the zenith of his fame and influence. He served at the Front in France, during the entire conflict, and he was largely responsible for the organisation and equipment of the casualty clearing stations. No one in trouble at home or in the War ever applied to him for help without receiving it in the form of wise counsel and true comradeship.

Three other men notable in this College have also been recently claimed by death.

Thelwell Thomas, of Liverpool, was a Member of the Council from 1921 to 1927. His skill as a surgeon and his kindliness as a friend will always keep him in our memory, but in addition he has bequeathed the generous sum of £5000 to the College which the Council has determined to devote to the benefit of the library.

Thomas Horrocks Openshaw, for many years surgeon to the London Hospital, and chiefly known for his pioneer work in orthopædic surgery, was a member of the Council from 1916 to 1924. He was a safe surgeon and yet always abreast of the times, and his genial personality and splendid fortitude in the tragic death of his brilliant son greatly endeared him to us.

Mr. Victor G. Plarr was the librarian of this College from 1897 to 1929. His quiet and unobtrusive personality made h'm a stranger to many of our Fellows and Members, but he was always working for the good of the College. That by which he will be best remembered is the work he did in writing lives of the Fellows.

The publication of these lives under the editorship of Sir D'Arcy Power is now being undertaken, the expenses being defrayed by Thelwell Thomas's bequest.

We have also to deplore the loss of the last known descendant of the Hunter family in the person of Miss Helen Hunter Baillie, the great grand niece of John Hunter, who died in February, 1929, at the age of 86. She had been a regular attendant at these orations and had presented a valuable collection of letters and family documents to the library.

Recent Events.

Having given this brief tribute to the memory of men by whose labours surgery has been advanced, I would follow the example laid down by most of my predecessors in mentioning outstanding events in the history and progress of the College.

The agitation by some of the Members of the College for a direct share in its government, the idea of which was first referred to by Sir William Lawrence in 1846 in his heated denunciation of making the Royal College of Surgeons into a Royal College of General Practitioners and which was first actually mentioned by Christopher Heath in 1897, has continued year by year. It may be said now to have entered upon a new phase, insomuch that the annual meeting at which this topic is discussed, which at one time was the scene of angry strife, is now one of amity and goodwill. This amity has been further increased by Mr. Buxton Brown's generous endowment for the provision of an annual dinner, at which Fellows and Members meet for convivial intercourse.

It is not for me to say if and when the Council of this College will directly represent the 18,000 Members as well as the 2000 Fellows, but I may express a sincere wish that the change, which is in harmony with the modern democratic spirit may take place soon. The chief thing which is needed to bring it about quickly is convincing evidence that the change is desired by the great body of the Members.

The attainment of the Fellowship has been greatly facilitated for those in the overseas dominions by arranging for the primary examination to be held each year abroad. The first examination held last year in Canada was so successful that it will probably be repeated each year and a similar arrangement is now being made for Australia and New Zealand.

Mrs. Macloghlin has left £10,000 and the residue of her estate for the purpose of founding and endowing scholarships for medical students in memory of her husband, the late Mr. Edward Macloghlin, M.R.C.S., formerly in practice in Wigan. A sum of approximately £30,000 has been left by the late Sir George Mackenzie K.C.M.G., C.B., in memory of his friend Sir William Mackinnon, Bt., jointly to the two Colleges for the endowment of medical research.

The Honorary Medal, the award of which was instituted in 1802 for liberal acts or distinguished labours. . . conducive to the improvement of the healing art and which has only 12 times been given, was this year bestowed upon Sir George Makins, G.C.M.G., C.B., LL.D., F.R.C.S., in appreciation of his valuable services to the College, more especially in arranging and describing the series of drawings in the Army Medical War Collection.

Scholarships for research have been founded in this College. Lord Beaverbrook's gift of £1000 was quickly allocated for tissue culture work, and the need for more permanent endowment was evident. The Council has therefore set aside £500 a year for research work, and generous benefactions from Lord Melchett and Sir Louis Baron have placed at our disposal two more similar sums for a like object, so that there will now be expended on vital research a larger sum of money each year than was received by the College as its total income in the days when Hunter received his diploma.

One can hardly question that this movement of greater activity for research would have had Hunter's whole-hearted approval. He spent all his income on his museum and his experiments. The museum was bought by the nation and placed in our trusteeship.

We are proud to think that what originally was a unique collection of 13,000 specimens had increased to over 64,000 when Sir Rickman Godlee delivered his Oration in 1913, and now numbers 72,676, due largely to the addition of the military section acquired during the war, the Onodi and the Strangeways collections, illustrating respectively anatomy of the nose and diseases of the joints.

But Hunter's spirit of never tiring adventure in the search for knowledge, although belauded, has not hitherto been adequately followed.

We are too apt perhaps to be satisfied with what after all is only a collection of dead things and to forget that Hunter's absorbing thought was that of probing the secret and mystery of life. How he would have been thrilled if he could have used a modern microscope and yet more if under that instrument of precision he could have seen the living cells growing and dividing. It is, therefore, a happy thought that among the recent objects of research in this College is that of the culture of living tissues.

One of my predecessors, Sir Rickman Godlee, having spent many hours in the Council room of this College, gazing at the famous portrait of Hunter, became convinced that the look of wrapt attention and reverie on his face was an indication that he was absorbed in the contemplation of this great question "What is life?" The story of the portrait, well known to many here, is nevertheless worth repeating. Hunter had promised to sit for his portrait to Sir Joshua Reynolds, but he proved so restless a sitter that that great painter was in despair of ever getting a soul-revealing picture of Hunter's face. He had made an unsatisfactory beginning as his sitter fidgetted and grumbled, but then owing to some unknown cause, Hunter became absorbed in contemplation as we now see him. The painter without a moment's hesitation turned the canvas round and hastily but faithfully depicted the face at rest, painting it in the space between the legs of the original portrait. I believe that one of the reasons which has led experts to advise against this picture being restored is the fear that restoration might reveal a pair of inverted legs surrounding the leonine face.

We hope that the recent endowment of research and the building of the new laboratories may go a long way towards removing from us the reproach that whilst we have treasured and added to the *things* which Hunter left us we have lost sight of the *ideals* for which he was for ever striving.

Another auspicious event has taken place since the last Oration was given. The President of the Royal College of Surgeons has been elevated to a peerage. Only twice have surgeons been made lords. The first instance was that of Lister, who received his peerage when his days of active surgery were over but when he was the President of the Royal Society. In the second instance we are happy in the knowledge that not only is Lord Moynihan President of this College, but also that he is in the heyday of his surgical virility. Never has his brain been more active, his tongue more eloquent, his hand more firm, or his eye more keen. Because that eye is now upon me, I must desist from any further words of eulogy and I excuse those I have already uttered because it is of this College and the honour which he has brought to it that it is my duty to speak.

In Hunter's day surgery was only just emerging from the lowly position of serfdom to medicine. The very name of barber-surgeons indicated this status, half tradesman and half apothecary, and now two centuries later the Royal College of Surgeons is presided over by a peer.

Hunter's Work on Bones.

Thus far, Sir, my path has lain on conventional lines laid down by my honoured predecessors, and I felt that I could not venture further without seeking for advice and guidance. For these I have sought for inspiration to speak my best about the great Scotsman, John Hunter, from two other Scotsmen, both of whom like Hunter himself have come to this city to enlighten our darkness.

I asked Sir Arthur Keith and his answer was "Bones," and I asked Carlyle and he said "Heroes." In all diffidence, therefore, I will try to follow both their counsels, only asking you to aid my poor words with your imagination in thinking of Keith speaking to you about Bones or of Carlyle thrilling you with his rugged eloquence as he discoursed to you about "The Hero as a Surgeon."

A great part of Hunter's life was spent in handling bones. Anything big and strong and lasting had as much fascination for him as anything that was curious or inexplicable. His greedy longing for the skeleton of the Irish giant, satisfied at last by its nefarious purchase, is the best-known instance of this. Hundreds of skeletons of reptiles, fishes, birds, and mammals were prepared, articulated, and preserved

Fig. 1.

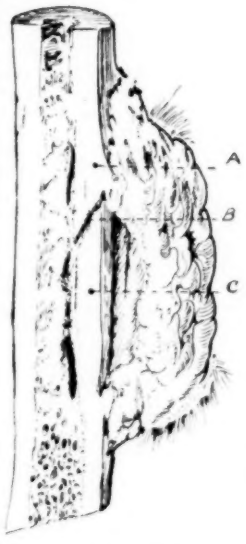
Shot in fowl's tibia. (AA') Shot. (BB') Points marking length of bone when shot were inserted.

by him and hundreds more were collected as fossils. Indeed, I suppose it would not be far from the truth to say that never before or since has any one man handled so many bones as Hunter.

But while his hands were busy with the bones his mind was busy with the questions of their formation and their growth. It is with his specimens dealing with these questions that we must occupy ourselves chiefly to-day. They fall into three categories. The first dealing with growth, the second with inflammation, and the third with transplantation.

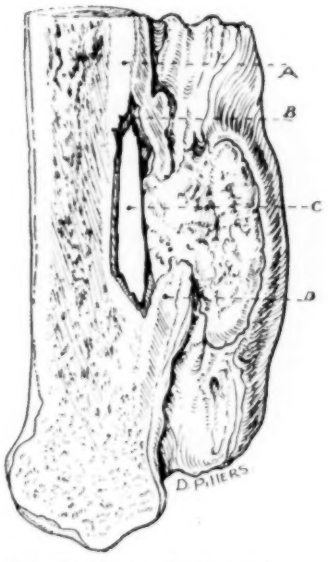
In Hunter's day bone was supposed to grow by a process of interstitial accretion. This was the doctrine of Du Hamel. True to his principle of "Don't think but try" Hunter determined to put this idea of bone-growth to the test. He buried two shot in the tibia of a young animal (both the pig and the fowl were used) two inches apart. (Fig. 1.) After a certain period when the animal had grown considerably it was killed and the shot were found to be the same distance from one another but much further from the two ends of the bone, thus proving that the

Fig. 2.



Experimental necrosis. Early stage. (A) Living bone. (B) Granulation tissue. (C) Sequestrum.

Fig. 3.



Experimental necrosis. Late stage. (A) Living bone. (B) Cavity containing sequestrum. (C) Sequestrum. (D) New bone growing over sequestrum.

growth in length of a bone was due to additions to its extremities.

Again, knowing of Belchier's discovery, that madder taken in the food is deposited in the bones, he fed young pigs upon food to which madder had been added. By giving and withholding the dye for varying periods and then killing the animals it was proved that madder-stained layers of bone were superimposed on unstained layers and that as new layers of bone were added to its surface the inner layer next to the marrow cavity was absorbed. He thus proved that the growth of a bone in thickness was due to the addition of new layers of bone to its outer surface and he recognised the occurrence of the physiological absorption of bone. He went further in this last observation, because he studied it in detail as it occurs in the shedding of a stag's antlers. He even anticipated some of the modern doctrines of internal secretions by noting the effect of castration in stunting the growths of the antlers. In one of Hunter's specimens, the head of a deer, in which the left antler is dwarfed, he tells us that from this animal the left testis had been removed.

In the second group of experiments Hunter demonstrated the process of inflammation, necrosis, sequestration, and the formation of an involucrum in a manner so perfect that his series of specimens stand to-day unique among our pathological collection. No better instance, I think, exists of how badly his tongue and his pen served his hand and his brain than is afforded by the laboured and involved description of the inflammation and necrosis of bones contained in Volume I., Chapter 18, of his collected works edited by Palmer as compared with the simple eloquence afforded by the specimens from which his learning was drawn. Most of these specimens were obtained by applying the actual cautery to one or other bones of an

ass. (Figs. 2 and 3.) Possibly this was the same animal the tendo Achillis of which was divided and its union studied and on which other more elaborate experiments were performed. If this was the case then Hunter's ass certainly deserves a place in history even more honourable than that of Balaam.

In the third group of experiments Hunter showed how animal tissues could be removed from their natural situation and grafted elsewhere. In the most striking of these he cut off the spur of a cock and implanted it into the vascular comb. The transplanted spur not only lived in its new environment but grew prodigiously. An even more startling experiment was that of implanting a human tooth into a cock's comb and noting that having taken to its new bed it became vascularised, so that an injection into the vessels of the cock passed into the tissues of the transplanted tooth. (Fig. 4.) He transplanted the spur of a hen into the leg of a cock and obtained perfect healing with good growth of the transplanted bone. (Fig. 5.) This, I believe, is the first instance of successful bone-grafting of which we have any record.

FIG. 4.

Tooth transplanted into cock's comb. (A) Tooth.

In Hunter's day it was not possible to carry out any but the most simple experiments with bones, because any deliberate exposure and cutting of bone was followed by septic inflammation. Since the advent of aseptic surgery, however, the bones have proved amenable both to experimental work as well as to surgical operations.

MACEWEN AND LATER WORKERS.

There have been added to the Museum two notable series of experimental specimens, the one by Sir William MacEwen and the other by the Jacksonian Essayist of 1913.

The one series is of great scientific and historical interest, because it really settled what may be called the battle of the periosteum once and for all.

Until MacEwen's work, the periosteum was regarded as the veritable matrix of the bone, chiefly because of the work of Ollier of Lyons. But MacEwen showed that bone could grow and live without periosteum and that the so-called periosteal new bone was merely bone which had grown into the periosteum from its basal attachment and that the periosteum is merely an inert limiting membrane. These ideas were at first scouted by American and continental workers, but that they have now been converted is proved by the words of Leriche, Ollier's most brilliant pupil. "An area of ready ossification, the periosteum is not a specific organ of osteogenesis," and "the functional characteristic of periosteum appears to reside in the imitation of ossification."

Quite recently Cowan, an American worker, has shown that not only does the periosteum not produce new bone, but that it is one of the chief agents in preventing the union of fractures, by its capacity of forming dense fibrous tissue, which is apt to grow between the fragments and so hinder the union of the callus which these produce.

But the ultimate mystic problem of how bone is laid down and again taken up is not only still far from solution but seems now to us much more complex than it was in Hunter's day. We know a little of some of the distant forces which determine how much bone shall be laid down or to what size or to what density it shall grow.

We know that the ductless glands, the pituitary, the thyroid, the parathyroid, the ovaries have some influence on the growth of the skeleton, that food elements which can neither be isolated nor analysed, the vitamins, may determine its density, and most mysterious of all, that not only can sunlight cause bone to grow but that this sun power can be first given to the food and by this transferred to the bones.

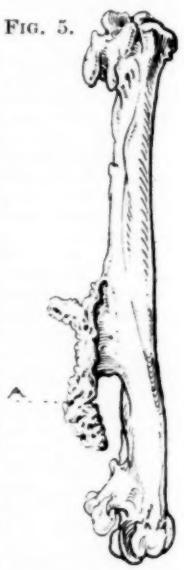
In fact the whole bewildering chapter in physiology called calcium metabolism appears to concern itself with all aspects of life and growth. But even the simple facts of the relationship between bone salts and bone cells are still matters of doubt and dispute. That animal tissues can be grafted was proved by Hunter, but the exact changes which take place in this process are most difficult to understand or explain.

Hunter took it for granted when he transplanted a human tooth into a cock's comb and it remained in organic connexion, allowing injection from the bird's vessels to permeate its tissues, that the tooth had become a living part of the cock's tissues. The modern view, however, would be that the vascularisation was only that of granulation tissue, by which the foreign tooth would have been eaten away and destroyed.

BONE-PLATING AND BONE-GRAFTING.

As I have said before, no practical advantages could have followed in Hunter's time from his grafting experiments. But in the modern era of aseptic surgery bone-grafting has become an everyday method of repairing fractures and of making good defects in the bones. For a time, it is true, the possibility of suture and fixation of bones by metallic substances, wire, plates, screws, and the like absorbed the attention of surgeons. But both clinical experience and experimental work soon showed the drawbacks and limitations of the use of metal substances and proved the great possibilities of grafting with bone tissue.

FIG. 5.



Bony spur grafted into leg bone of a fowl. (A) Spur.

The Jacksonian specimens illustrate many of these points, of which the following may be mentioned as the most important.

Any metal substance, whether wire or screw, exerting firm pressure upon living bone, causes either necrosis, or else absorption of the bone, and therefore is to be regarded as essentially a hindrance to bone growth or repair. This bone destruction, whether by necrosis or absorption, is a vital and not a septic process, but it leads to conditions very favourable to the latter. When, however, metallic fixation is efficient and bone union occurs there is produced in the end a reactive inflammation by which the foreign body becomes encased in a layer of dense new bone. Thus the method used clinically may and often does lead to painful osteitis which finally requires the removal of the offending metal.

In regard to bone-grafting the specimens under consideration give by no means a complete picture of the process. But they do illustrate two points of cardinal importance. The survival and functional union of the graft to the host bone depends essentially upon perfect contact and adequate fixation between the graft and the host. No living graft, however carefully cut even from the same animal, will survive

or function if it is laid loosely into the tissues of the host. In other words, the graft manifests no innate vitality of its own. Further, if two small grafts taken, one of living autogenous bone, the other of dead, boiled bone, be fixed firmly in the shape of pegs into holes bored in the living host bone, then at the end of six weeks both will have grown in place and neither naked-eye nor microscopical examination can detect any difference. Dense bone when transplanted always dies, in the sense that its cell spaces and vascular channels become empty. It is then invaded by new vessels and inhabited by new bone cells provided by the tissues of the host. From this it follows that in many cases it is just as good to use dead bone in the first place and to trust to the activity of the host's tissues to vascularise and vivify it. Of this I shall show you a convincing proof presently. But it would be going too far to assert that the living autogenous graft has no advantage over the dead one. Certainly when a gap in a bone has to be bridged the living graft becomes a vital and growing part of the skeleton much more surely and more quickly than does a dead graft. Therefore in such cases as making good the gap left by the destruction of the whole diaphysis by osteomyelitis or the fixation of a tuberculous spine by the insertion of a tibial graft—a suggestion which we owe to the genius of an American colleague Dr. Albee—it is better to use the living bone taken from the patient himself. Whether this superiority of the live graft is due to the survival of superficial cells or to its more ready permeability by the host blood-vessels we do not know—but it is certainly not due to the survival of the graft as a living entity.

In the beautiful specimen lately presented to the Museum of a double bone-graft of the spine, obtained three months after the grafting operation, the grafts are seen to be in close vital union with the vertebræ. (Fig. 6.) But it is evident that the great vascularity of the grafts represents a new process of permeation and invasion by new blood-vessels, as the tibial crests from which they were taken contain no such blood channels.

Probably I have raised in the minds of many of my hearers a feeling of scepticism about the possibilities of dead bones being capable of functioning as real vital grafts—vital, that is to say, in the sense that they become an integral part of the living skeleton.

Therefore I will venture to give you three illustrations, which I am happy to say are not dead specimens in bottles, but living healthy people.

The first is from a lady of 39, who had an ununited fracture of the neck of the femur of two years' duration. The bone was mended by exposing the hip-joint and nailing the head of the bone to the neck after the former had been dislocated. For this purpose a nail made of dead bone cut from a stag's antler and 3 in. long and ¾ in. thick was used. She made a rapid and complete recovery and to-day, three years after the operation, it is impossible to detect from her active movements which of the hips has been injured. The X rays show very well how the bone nail first merely held the broken neck of the femur together (Fig. 7 A, B, C, D), then slowly but surely became incorporated into the living skeleton.

The second instance is in a man of 25, who at the time of the operation was 18. He had developed fibrocystic disease in the upper part of the left femur, which had become reduced to a mere shell of bone, causing a definite aching pain, premonitory of a spontaneous fracture. The exact nature of the condition was revealed by a preliminary operation in which a mass of firm fibrous tissue was revealed occupying the whole cavity, shown by the X rays. An exact model of this cavity was prepared from a tooth of a walrus, which by its curve and size seemed just made for the purpose. The whole cavity in the bone was exposed by cutting a trap door from the back of the femur, the fibrous mass was removed in one piece, and the ivory graft inserted. (Fig. 8 A, B.) There it remains to this day, surrounded but not replaced by the human bone, the dense ivory having proved resistant to penetration by new blood-vessels. The patient, a quarry-man, has been in good health and active work ever since. It is to me a happy thought that whilst Hunter was able to graft a tooth into a cock's comb 150 years ago, we have succeeded in implanting a walrus tooth into a man's leg in such a way as to form an integral part of his skeleton.

FIG. 6.

Autogenous tibial graft into human spine. (AA') Grafts. (B) New bone growing into grafts.

The third instance is perhaps the most instructive of all, because the dead graft was made to bridge a gap and has been associated with very active growth of a long bone. The boy as he then was, 10 years ago, between the ages of 7 and 10, had broken the right humerus four times, usually as the result of trivial violence. The X rays showed a cyst in the middle of the shaft of the bone. (Fig. 9 A.) The whole thickness of the affected portion of the bone was cut out for a length of three inches by a subperiosteal resection and you see the specimen thus obtained. (Fig. 9 B.) The gap was made good by thrusting a long piece of beef bone into each fragment and then bolting together the projecting ends of the grafts. Each graft had had many small drill holes made into it, in order to facilitate its penetration by living tissues. He made a smooth recovery without the use of any splint and was able to return to the dangerous environment of public school life six weeks later. The X ray pictures will show you how the beef bone has remained in place for ten years, becoming gradually merged, especially at the ends in the structure of the human bone. (Fig. 9 C, D.) That this bone has suffered no diminution of growth from its invasion by an ox bone is evident from the pictures but that you may be finally convinced of this I have brought the gentleman himself to show you,

and you will admit that the addition of a piece of beef bone to his anatomy has not interfered with his growth. (He is now 6 ft. 2 in. and an undergraduate at the University.)

I have selected the study which Hunter made of bones and some of the things which have arisen from it as an example of his work, chiefly because it has not been touched upon by any of my predecessors and also because it is most familiar to myself, and this leads me to my first observation about Hunter as a great man. Think of it!

Seventy-five orations about one man and his work and still there is left a great subject almost untouched.

HUNTER AS A WORKER.

The first, but I will not say the greatest claim, which Hunter makes to be regarded as a veritable giant among men is his capacity and enthusiasm for work. He came as a young man from Scotland and began his life in London; making anatomical preparations in the school of his elder brother, William, he then taught anatomy and got himself qualified after working at Chelsea, St. Bartholomew's, and St. George's Hospitals. He was already deeply engaged in scientific research work chiefly in dissecting all the animals he could get. His health threatening to break down, he applied for and obtained a military surgeon's post and served for three years in Belle Isle and on the Peninsula.

On his return to London, his practice having vanished, he began strenuous work in dissecting, describing, and collecting specimens, which was the beginning of the present Museum. He became a surgeon to St. George's Hospital, he lectured on anatomy and surgery. He acquired a great and prosperous practice, and with its proceeds bought a country place at Earls Court in which he collected a veritable menagerie of wild animals and continued with his experiments. He became the Deputy Surgeon-General of the Army Medical Service. He had been for a long time a Fellow of the Royal Society and was already engaged in writing and contributing scientific papers for that learned body. Before he reached the zenith of his fame he had begun to suffer from attacks of angina pectoris, all the symptoms of which he relates with vivid exactitude.

His whole day being taken up with his practice and his teaching and his body racked with an ever-progressive disease, his last thought was of seeking rest or repose. On the contrary, his passion for work kept him up until midnight writing and awakened him again at four in the morning when he settled down to his dissecting. If a stranger wrote to him, wishing to see his work and profering an introduction from another distinguished surgeon or scientist, Hunter would name 5 A.M. as a suitable hour for an appointment! This all sounds incredible but its truth is vouched for by many witnesses, including Hunter's arch-enemy, the notorious Jesse Foot.

But in addition to witnesses from the past we have the convincing evidence afforded by 13,600 specimens in the Museum. It is not easy to grasp in a moment the significance of these figures. Hunter began his work at the age of 20 and died at 65. Allowing then full 45 years and 300 working days in each we have the total of 13,500 days with 13,600 specimens collected, or an average of one specimen for every day of his life. Many of these necessitated experiment or elaborate dissection, and he also left many folios of drawings, notes, and descriptions, besides those destroyed by Home and the 55 papers or treatises written by Hunter or prepared from his notes after his death.

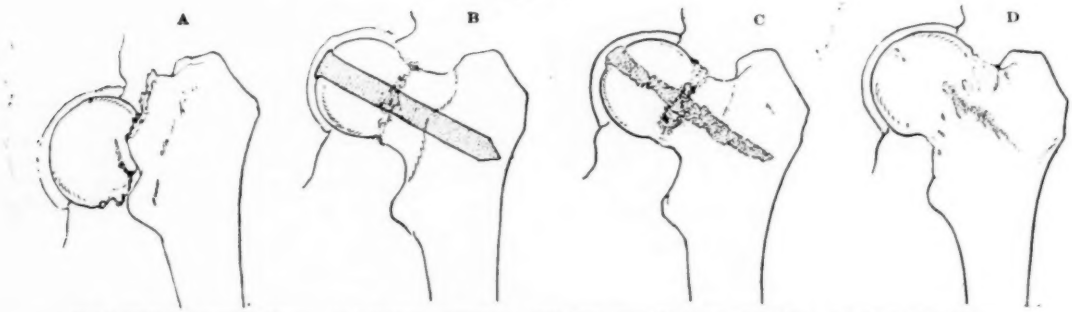
FIG. 8.

Ivory graft in human femur. (A) Femur before operation showing fibrocystic disease. (B) Disease excised and cavity filled by ivory tooth seven years later.

A few people there may be, but very few who in intellectual pursuits really do work hard, but how many of these continue their self-imposed slavery right up to the end of their lives, even when fame and fortune have smiled upon them?

Hunter knew full well that he was suffering from a mortal disease, for he told a friend that his life was at the mercy of any rascal who chose to anger him and yet he went on at full pressure to the day of his death, when his own prediction came true and some colleague giving him the lie in the board room of St. George's Hospital he felt that the fatal blow had been struck and expired in the arms of Dr. Robertson.

FIG. 7.



Dead graft in human femur. (A) Before operation. (B) Two months after operation. (C) One year after. (D) Two years after.

HUNTER AS A SEEKER.

And this brings me to the next point which unhesitatingly may be said to be his chief claim to greatness. And this is the driving force which lay

behind his work. Hunter was desperately in earnest. He was inspired by a vision of the mystery of life, which called him on and ever onwards, trying, experimenting, asking and seeking to know something of the truth of life and nature. "No man adequate to do anything, but is first of all in right earnest about it; what I call a sincere man. I should say sincerity, a deep great, genuine sincerity is the first characteristic of all men in any way heroic." That sentence of Carlyle's I take as literally applicable to our hero.

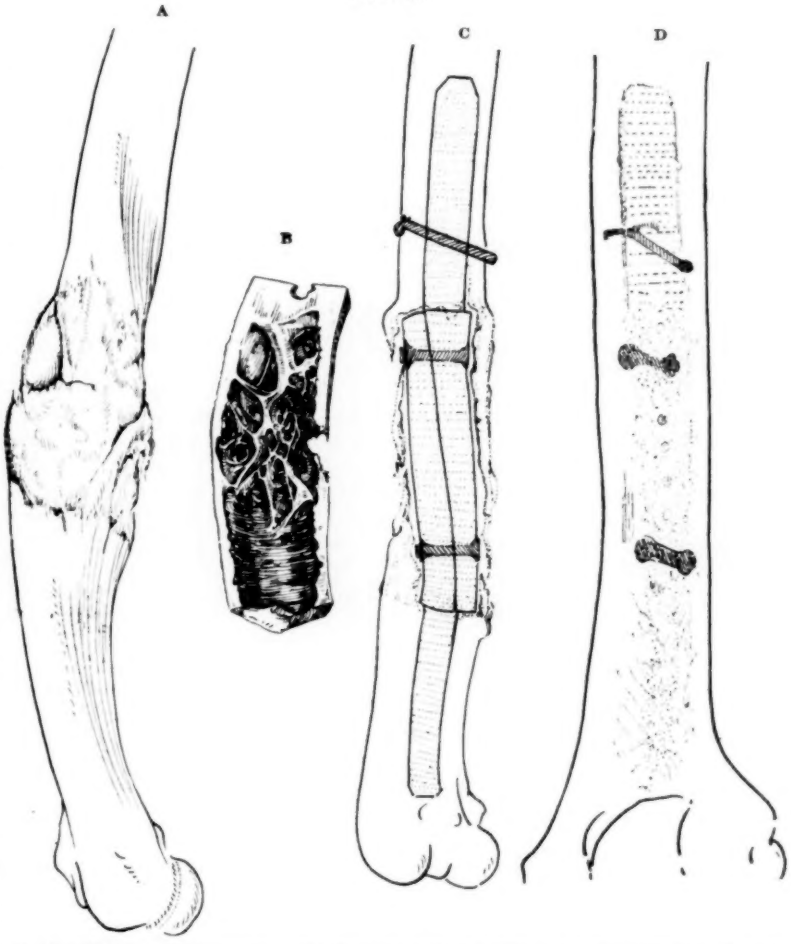
Nothing serves better to illustrate Hunter's desperate enthusiasm for research than his own deliberate inoculation of himself with disease. Unhappily this experiment was only too successful, though he himself failed to understand what has been so amply demonstrated by others that this disease, when it had apparently disappeared, laid relentless hold upon his blood-vessels and led to angina and to his tragic death.

It has been many times claimed that Hunter's secret lay in his having adopted the Baconian or inductive philosophy. But others have justly remarked that he often allowed himself to lapse back into the deductive method and that whenever he did this he wandered from the path of truth. It is highly improbable that he ever consciously adopted any philosophic system. He just went straight to Nature and demanding to know the answer to her riddles he thought nothing of giving his fortune and his life as a price for his knowledge.

In biological science Hunter was the greatest seeker the world has ever known, though by no means the greatest finder. It was his desperate earnestness in seeking and not merely the products of his research which then and now rivets men's attention. It was an arresting spectacle to see a Scotchman spending £70,000 in collecting specimens which had no intrinsic value. It was his supernatural faith that there was in Nature something worth seeking, which made other men follow his lead. The mere sight of a man earnestly gazing at some object in the street is enough to draw a crowd who will endeavour to find out what all are looking for. The pioneer who refuses to be satisfied with the bare tillage of the surface soil, worn poor by many generations of cultivators and convinced that a rich vein of gold is to be had for the digging, spends all his energies, his fortune and his life, in delving into the earth for buried treasure—who brings up many strange things, which at first only a few know to be auriferous ore—this is the man whose faith and enthusiasm compel others to follow. The pioneer does not himself, may be, find the largest nugget, or the purest gold, but he shows where gold may be found and how to find it.

Such a pioneer was Hunter and to Lister coming after him was accorded the good fortune to bring to light the most precious treasure that the surgeon-digger has ever given to his fellow men. It was John Hunter's faith and vision which raised surgery from the level of a craft and art to that of a science, and which has proved an inspiration to his followers. "For consider," as Carlyle says, "what mere time will do in such cases; how if a man was great when living, he becomes tenfold greater when dead."

FIG. 9.



Dead graft in human humerus. (A) Humerus before operation showing fibrocystic disease. (B) Portion of humerus excised. (C) Humerus reconstructed with beef bone, three months after operation. (D) Same case ten years after operation.

HIS HUMAN FRAILTIES.

The wonderful influence which Hunter exerted upon contemporary thought is made much more remarkable when we consider his many shortcomings and frailties.

He was gifted neither with learning nor eloquence. Of his writings I am almost tempted to quote what Carlyle says of Mahomet's Koran: "I must say it is as toilsome reading as I ever undertook. A wearisome, confused jumble, crude, incondite; endless iteration, long-windedness, entanglement." I sometimes wonder whether his brother-in-law, who afterwards became Sir Everard Home, the first President of the Royal College of Surgeons, deserves all the obliquy which has been heaped upon him for taking a cartload of Hunter's unpublished writings away with him and quietly destroying them, after he had extracted so much learning from them as by papers

contributed by himself to the Royal Society, earned him a Fellowship in that body.

Although Hunter lectured for many years he found it a painful task and often took laudanum beforehand to quiet his discomforture. He had none of the classic learning considered essential for a scholar in his day, and even when he had a chance of acquiring it at Oxford he impatiently threw it aside, saying that he would rather learn from living Nature than from dead languages.

Even in those uncouth days Hunter was a rough customer. He was always quarrelling—whether with fellow officers in his military service or with his own brother, or other workers at home. He bursts into his wife's drawing-room and addresses her visitors: "I knew nothing of this kick-up, I ought to have been informed of it beforehand, but as I am now returned home to study I hope the present company will retire." It seemed that he must quarrel even to the end, even though it cost him his life.

If it should seem strange to mention these human frailties when speaking of one who was truly a hero, if ever there was one, I do it deliberately in order to emphasise that Hunter owed his influence to the greatness of his work, the almost blinding sincerity of his vision, and to his unquenchable enthusiasm, rather than to any charm of manner, or polish of language. I must quote Carlyle again when he says: "On the whole we make too much of faults; the details of the business hide the centre of it. Faults? The greatest of faults, I should say, is to be conscious of none."

His Heritage and Inspiration.

To the whole surgical world who have come after him Hunter's most priceless bequests have been his inspiration and his heritage. The heritage is here as the most wonderful museum of its kind in the world, the inspiration is impossible to limit or define.

We know that Hunter's experimental methods laid the foundations of modern physiology and pathology. He taught us to seek out the relations between structure and function in the normal tissues and between disorder and disease in the morbid. In his collection of animals and of fossils and his observations on development with its parallelism between the growth of the individual and the elaboration of the race, he came very near to the Darwinian theory of evolution. His methods, closely followed by Lister, were the basis of the discovery of the antiseptic treatment of wounds. 'Worship of a hero is transcendent admiration of a great man." The great turbulent heroic soul of Hunter has never lacked this worship, or else these 76 Orations have been poor sham mockeries.

Even if we admit that orations are but empty words, there exists a far more vital evidence that the torch of inspired enthusiasm has been faithfully handed down from his day until now.

First, there was that dear old man Clift, who like a watch dog guarded his master's treasures after his death, when it seemed that nobody wanted them. For seven years he lived on 7*s.* a week, whilst he kept his trust and then later became the first formal custodian of the Museum. The watch dog growled and showed his teeth, but alas could do no more when his master's precious papers, many of which Clift had himself helped to write, were carted away and secretly destroyed by Home.

Clift's daughter married Richard Owen, who succeeded him in the guardianship of the Hunter Museum and became the greatest palæontologist and comparative anatomist of his day. He was later transferred to the Natural History Museum at South Kensington. Owen was followed by Paget, a most notable torchbearer, whose ceaseless labours added so much to surgical pathology and whose silver-tongued eloquence is remembered by many now living.

Then came the greatest of Hunter's followers, Lister, whose name is held in honour all the world over as the one whose work has saved more lives and suffering than have been sacrificed by war. Lister, it is true, never held high office in this College, though he was a Member of Council for eight years. His gentle soul did not love fighting with his detractors, and he preferred to pursue his quiet research in the laboratory and at the bedside.

And lastly we are fortunate in having to-day, in the person of our beloved Curator, Sir Arthur Keith, one on whom the mantle of John Hunter seems perfectly to rest, the depth of whose learning and the eloquence of whose tongue fits him so well to be the guardian of Hunter's heritage and the exponent of Hunter's inspiration.

Hunter may truly be said to have raised the idea of the scientific pursuit of truth to the level of that compelling influence in men's lives which is called religion. For he had a vivid faith in his quest, an unquenchable enthusiasm for his ideal; he left an inspiration for all who come after him and a real hero for us to worship.

PSITTACOSIS.

A FURTHER ACCOUNT OF CASES OF HUMAN INFECTION.*

By A. P. THOMSON, *M.C.*, M.D. Birm., M.R.C.P. Lond.,

ASSISTANT PHYSICIAN TO THE GENERAL HOSPITAL BIRMINGHAM; PHYSICIAN TO THE CHILDREN'S HOSPITAL, BIRMINGHAM.

With Bacteriological Reports by

W. T. Hillier, M.R.C.S. Eng.,

CLINICAL PATHOLOGIST TO THE GENERAL HOSPITAL.

In a recent communication[1] I published a brief review of psittacosis and described four cases of human infection that had come to my notice. My reason for returning so soon to the subject is that I have since met with no less than 17 further cases, which are recorded fully below as Cases 5–21. Five of them I myself did not see, but the clinical details leave no doubt of the diagnosis. Of the remaining 12, two (Cases 6 and 7) were not sufficiently clear to warrant a final opinion, but I regard them as probable instances of mild infection.

The fact that so many cases in so short a time, have come to the notice of one physician seems to justify the tentative opinion that I expressed previously, that sickness of this type is by no means rare. It is true that in Cases 5, 6, and 7 I was consulted as a result of the publicity given to my first paper by a daily newspaper, but most of the others occurred in the ordinary course of practice, and I saw them as unsolved problems of obscure pyrexia. In several instances a fairly confident diagnosis was made on purely clinical grounds, a history of contact with sick birds being elicited only later.

From various lay and medical sources I have received accounts of obscure illnesses which give reasonable grounds for the belief that they were in fact due to psittacosis, but I have thought it wise not to publish these.

A Group of Three Cases.

For information and help in preparing the record of Cases 5, 6, and 7 I am indebted to Dr. W. Geoffrey Shaw, of Weaverham, Cheshire, who had charge of them, and to Dr. W. H. Grace, pathologist to the Royal Infirmary, Chester, who saw them in consultation.

On June 27th, 1929, Mrs. A bought a young parrot from a dealer in London. The day after its arrival in her home the bird appeared to have a "cold"; a little later the feathers became ruffled and were shed freely and there was a frothy discharge from the nose. Diarrhœa set in on July 20th and on

* The greater part of this communication was read to a meeting of the Royal Society of Medicine, Section of Medicine, on Jan. 28th, 1930. An account of four additional cases, and a discussion of the ætiology in the light of the investigations published since then, is now incorporated.

the 22nd the parrot died. The bird had been much petted by Mr. A, who had trained it to walk up his arm and take a lump of sugar from between his lips, and his little son had often played with it. Mrs. A cared for it during the later stages of its illness. On the day that the parrot died Mr. A (CASE 5), who had appeared unwell for two days previously, collapsed at his work and on returning home was found to have a temperature of 103° F. As Dr. Shaw could find nothing to account for the fever, he invited Dr. Grace to see the patient the following day, and the latter has kindly sent me the following report.

"When I first saw him he had a distinctly high temperature and felt ill. Clinically, to me, he did not quite fit in with a case of typhoid or paratyphoid; the onset was rather sudden—although I tried to persuade myself that he had been walking about for some time with a pyrexia and had refused to give in—and he seemed to be more suddenly ill that one usually finds in one of the typhoid group infections. When I saw him he was almost on the point of a rigor, his conjunctivæ were very injected and he was more brightly spoken than one usually sees in typhoid or paratyphoid infection. I could not see any spots, nor could I feel his spleen or find anything abnormal in the chest. I tested some of his serum with the Medical Research standard agglutinable emulsions of typhoid and paratyphoid A and B. To my surprise he gave quite a quick and complete agglutination of the *B. typhosus* up to 1 : 300 and a slight agglutination of the *B. paratyphosus* A and B to 1 : 10. With these results I was prepared to throw overboard my clinical impressions and, for the moment, call the case one of pure typhoid and advise its treatment accordingly. I have since examined fæces, urine, blood, the parrot's perch, and scrapings from the bottom of the parrot's cage, but in no case have I found a non-lactose fermenter."

Mrs. A, from the very beginning of her husband's illness, had insisted that he had been infected from the parrot and searched any literature that she could find bearing on diseases of birds that might be transmitted to men; she had no success, however, until she came across a paragraph in a daily newspaper referring to my first paper in THE LANCET, which she immediately obtained. In these circumstances I saw Mr. A in consultation with Dr. Shaw on July 28th. For the previous six days his temperature had been constantly high, between 103° and 104° F., but his pulse-rate had remained slow; it never reached 100 per minute and was usually between 80 and 90. He was flushed and sweating profusely and complained of intense headache: he was mentally clear, but at times he had been mildly delirious. An irritable cough had developed two days previously, and as I entered his room he expectorated some rusty sputum, but this never recurred.

On examination I found, at the right base in the axillary line, some fine crepitant râles and a patch of rather doubtful faint tubular breath sounds. Dr. Shaw and I agreed that at that stage he looked rather like a case of pneumonia. There was no serious abdominal distension; the spleen was not palpable and there were no typhoid spots, merely a few sudamina. The bowels were costive. A blood culture I made at the time proved sterile (as did Dr. Grace's) and I recovered nothing of significance from a post-nasal swab. The piece of rusty sputum that I took away with me yielded a Gram-negative, non-lactose fermenting bacillus, but I was never able to get it in pure culture and eventually it died out.

Later Dr. Shaw sent me the following report on the progress of this case: "As far as the clinical aspect was concerned, he appeared to be a typical typhoid. The temperature curve reached its maximum at the beginning of the second week, then remained at a steady 100°–101°, and in the third week came down by lysis. During the whole febrile period he complained of intense headache and had troublesome cough, with scanty muco-purulent sputum. The tongue was thickly furred and the bowels were obstinately constipated throughout. The small spot in the right lung, where you suspected a commencing broncho-pneumonia, did not extend and there were no further pneumonic signs. The pulse-rate remained slow (about 80–85) and of good tension throughout the illness. His convalescence was uneventful."

Two or three days before Mr. A became seriously ill, his son (CASE 6), aged 7 years, fell sick with an acute febrile attack (on one occasion the mother found a temperature of 103°). After four or five days the temperature became normal, but it continued to go up to 99° each evening for a fortnight. During that fortnight he always declared that he felt perfectly well; he certainly had no symptoms of any kind except constipation, but looked rather pale and "washed-out." I examined this boy with Dr. Shaw on July 28th and agreed with him that there were no abnormal physical signs. It is probable that this child was infected from the bird, with which he had been in close contact, for he became ill at about the same time as his father and it is well known that in children infections of the typhoid group run a much milder course than they do in the adult.

Mrs. A (CASE 7) had a remarkable experience. On July 25th, when her husband had been in bed for three days, she complained of backache and of feeling ill. On the following day, in view of Mr. A's positive Widal reaction, she was given a protective dose of T.A.B. vaccine (500 millions of *B. typhosus* and 250 millions each of *B. paratyphosus* A and B). One and a half hours after the inoculation she had a rigor and became collapsed; her temperature was moderately raised during the next four days and she had a slight cough with mucoid expectoration. Her subsequent progress was uneventful. At the same time that she was inoculated her maid received a similar dose, with the usual consequence of a slight feeling of illness and a trivial temperature 24 hours later.

The very severe reaction shown by Mrs. A to the vaccine suggests that she was sensitised to an organism of the typhoid group, and it may be that at the time of inoculation she was incubating an infection similar to that of her husband. If this was so, the vaccine cut short the attack in a remarkable way.

Further Clinical Histories and Bacteriological Findings.

CASE 8.—On August 12th, 1929, Mrs. B, a lady of middle age and the wife of a doctor, took charge of a young parrot which was confided to her care by some friends because it had become sick and she was known to be interested in birds. During the next fortnight the parrot became extremely ill, with vomiting and profuse diarrhœa of a very offensive kind; nevertheless Mrs. B tended it assiduously and managed to restore it to its owners alive on August 26th, but it died three days later. On Sept. 1st, five days after parting with the parrot, she developed a headache and felt shivery; her temperature was found to be 100° and she went to bed. During the next five days the fever steadily increased to 103·5 and the headache became more severe; it was mainly occipital in distribution but sometimes diffuse. There was some diarrhœa during the first three days and she frequently vomited, particularly after taking medicine.

I saw her first on Sept. 6th, in consultation with Dr. T. M. Tibbetts of Stourbridge. The temperature was nearly 104° but the pulse was slow, just over 90 per minute; she complained of intense headache but was mentally quite clear and bright. Some sharp crackling râles were heard in the third left intercostal space, but apart from this, a dirty tongue, and moderate abdominal distension, physical examination was negative. I was at once struck by the resemblance of this case to the one I had seen a year previously and on inquiry elicited the history of contact with the sick parrot, which warranted a fairly confident diagnosis of psittacosis.

The next day the patient was admitted to the General Hospital; she had slight epistaxis just before she left her home. During the next 13 days the temperature slowly fell by lysis from 104° to normal. The pulse-rate hardly ever reached 100 and respiration was never seriously hurried. Despite the gradual fall in the temperature the general condition appeared to become worse, and she was very gravely ill during the whole of the febrile period and for a week afterwards. The signs in the left lung gradually extended. On Sept. 8th rather coarse crepitant râles were heard over the whole of the left upper lobe in front; on Sept. 9th there was definite dullness above the left breast, reaching to the axilla, and crepitations were heard at the back. Tubular breath sounds were found on Sept. 10th in the left axilla, and coarse crepitant râles were present throughout the whole of the left lung. By Sept. 13th the breath sounds in the left lung became faint and were hardly audible on the 16th; during the four following days the left lung was almost completely silent and the percussion note over it was dull. A lung puncture on Sept. 18th proved the absence of fluid. Subsequently a few crepitations appeared in the lung and the physical signs eventually cleared up by Sept. 30th, when the temperature had been normal for ten days. Cough was never severe, but she had a distressing hiccough for some days. There was practically no expectoration. The spleen was never palpable and there were no true typhoid spots (though one suspicious spot was noticed on the flank in the early stages). Occasionally she had diarrhœa and passed loose greenish stools, but this may have been due in part to the measures adopted to relieve abdominal distension, which was of extraordinary severity. She often became acutely distended in the course of an hour or so; injections of pituitrin and eserine with turpentine enemata generally produced immediate relief with the passage of vast quantities of flatus and a visible diminution in the size of the abdomen, but within an hour she was frequently found to be as tense as before. On one occasion the passage of a tube led to the escape of so great a quantity of flatus that she had a serious collapse, similar to that sometimes seen during operations for the relief of acute

intestinal obstruction. Subsequently, to avoid this, the flatus tube was clamped and the gas allowed to escape slowly. On Sept. 11th she became very drowsy and on the 13th completely stuporose; for six days she never spoke and seemed entirely oblivious to her surroundings. Her face had a mask-like immobility, with a curious retraction of the upper eyelids, so that a wide rim of sclerotic could be seen above the pupils; blinking occurred very seldom. At times slight weakness of the sixth or seventh cranial nerves on the right side was suspected, and very severe bilateral ankle-clonus was present for several days. The tendon reflexes were exaggerated, and on one occasion an extensor plantar response was found on the right side. The fundi were normal, but for one day the right pupil was much larger than the left, though reactions to light were brisk in both. Incontinence was frequent. Her general appearance was suggestive of parkinsonism, and Dr. Stanley Barnes, who saw her with me, thought there was no doubt of it. As she slowly recovered from the stuporose condition she was completely disorientated in place and time, and later on she told me that she had no recollection at all of this period of her illness. The incontinence persisted for some days after the disappearance of her other nervous symptoms, and three weeks after the temperature fell to normal her memory was found to be still impaired. Eventually she made a complete recovery.

Her husband received a protective injection of T.A.B. vaccine at my suggestion on Sept. 7th, and we gave her three small injections (about 7·5 c.cm. each) of his serum on the 15th, 19th, and 20th, but they appeared to have no appreciable effect on the course of her temperature. In view of the result of similar injections in Case 9, it is probable that so soon after his inoculation the husband had not accumulated sufficient antibodies to be of value.

Bacteriological Report.—Four specimens of fæces were examined. Those of Sept. 9th, 11th, and 18th yielded no non-lactose fermenters. That of the 12th yielded an organism giving gas only in glucose and lactose broth, acid and clot in milk, acid and gas in dulcite, maltose, and mannite, and no reaction in saccharose and inulin. The presence of acid and clot in milk culture renders it possible that this organism, which in some respects is rather like *B. aertrycke*, was in reality a lactose fermenter and, if that be so, all the four specimens of fæces gave negative results for *B. psittacosis*. The blood culture, taken on admission, was sterile, and a post-nasal swab yielded no non-lactose fermenters.

The urine (Sept. 7th) yielded an organism identified by its sugar reactions in 48 hours as *B. fæcalis alkaligenes*. Cultures from a lung puncture (Sept. 17th) produced an organism which, by the sugar tests, resembled *B. fæcalis alkaligenes*, but which was non-motile and so short that it was impossible to be certain whether it was truly a bacillus or a coccus.

B. psittacosis, then, was not found in fæces, urine, post-nasal swab, fluid from lung puncture, or blood. *B. fæcalis alkaligenes* was obtained from the urine (and possibly from the lung).

Agglutination tests against *B. typhosus*, *B. paratyphosus* A and B, salmonella (Mutton and Newport) on Sept. 8th and 10th (in the second week of illness) were completely negative. Serum taken on Sept. 19th, however, agglutinated 24-hour broth cultures of *B. psittacosis* (Perry) National Collection of Type Cultures 1: 500 and organism *B. fæcalis alkaligenes* from the urine, broth culture 1: 40, but there was no agglutination with *B. typhosus* or *B. paratyphosus* A or B. On Sept. 26th, a week later, another specimen of serum failed to agglutinate broth cultures of *B. psittacosis*, *B. fæcalis alkaligenes* or salmonella (Mutton), but with a suspension from an agar culture in normal saline it agglutinated *B. fæcalis alkaligenes* at 1: 80. Saturation with either *B. psittacosis*, salmonella (Mutton), or *B. fæcalis alkaligenes* removed all the agglutination for *B. fæcalis alkaligenes*.

CASE 9.—A healthy Jewish girl of 26 played tennis throughout the day of Sept. 10th, which was hot and sunny. Shortly afterwards she complained of occipital headache and of feeling shivery, but for the next four days, although obviously ill and in spite of occasional vomiting and epistaxis (to which she was at times subject), she carried out her usual secretarial work. On Sept. 13th her temperature was found to be 101°, on the 14th it was 103°, and on the following day, when I first saw her in consultation with Dr. B. Herbert, it had risen to 105°. On the morning of Sept. 14th Dr. Herbert found a patch of dullness and faint breath sounds at the base of the right lung and was suspicious of early pneumonia, although he noticed that the respiration was not rapid and that the pulse-rate remained rather slow; it was recorded by a nurse as 104 to the minute, although it was nearer 120 during his examination. These slight signs at the right base cleared up in 24 hours, and Dr. Herbert asked me to see her, as the diagnosis remained doubtful. Her general condition was good, though she appeared seriously ill. She complained of occipital headache, slight stiffness of the neck, and photophobia. Apart from trivial cervical rigidity and some sharp crepitations at the left base, physical examination yielded nothing of importance. In particular Kernig's sign was negative, the reflexes were normal, and the fundi were clear; there was no abdominal distension and the spleen was not palpable. There was no known tuberculosis in the family. The history of the onset—a steady rise in temperature, a slow pulse, headache and slight vomiting, and epistaxis—together with the discovery of crepitations at the left base (which had been preceded by questionable signs of early pneumonia on the right side), in the absence of splenic enlargement and any mental dullness, led me to suggest the possibility of psittacosis, although Dr. Herbert, who knew the family well, was fairly confident that contact with birds was unlikely.

Nevertheless, on inquiry we were told that on August 30th (11 days before the onset of illness) our patient's fiancé had made her a present of two love-birds, one of which at the time of purchase appeared to be off colour. The vendor, however, was confident that the bird would soon recover, but this cheerful prognosis proved to be incorrect, for it rapidly became worse and suffered from continuous diarrhœa; and a few days later, on the advice of a local bird fancier, it was placed in a separate cage apart from its mate. Despite the unpleasant nature of its disease, our patient continued to attend to the sick love-bird, and until she herself became ill no one else in the house did much for it; subsequently the bird was cared for by an elderly aunt (CASE 10), whose history is given below. The two love-birds, when Dr. Herbert and I inspected them, presented a remarkable contrast, for the sick one remained crouched and motionless on the floor of its cage with its feathers bedraggled and ruffled; its breathing was obviously laboured and it frequently passed loose stools. Surprisingly enough, it often took food voraciously. The girl and both birds were removed at once to the General Hospital, where the sick bird was found dead in its cage the next morning. The other bird remained healthy.

For the following week the patient was very gravely ill, with a high continuous temperature, which occasionally reached 105°, and was nearly always above 104°, despite frequent sponging. The pulse-rate remained about 120, but towards the end of the week reached 130. The respiration-rate was about 30 for the first three days, but later rose to 50 to the minute.

On Sept. 17th my colleague, Dr. K. D. Wilkinson, saw her with me in consultation, and we found a small area of consolidation at the left base. The remainder of the physical examination was negative, apart from the presence of a few seborrhœic spots on the chest. The patient told us that these always became more prominent at menstruation, which began that day and ran a normal course. She was still mentally clear, had slight cough with scanty muco-purulent expectoration, and complained of flatulence and difficulty in breathing. There was no abdominal distension. During the next three days she became progressively worse; mentally she was dull and torpid, but never completely stuporose, although at times there was mild delirium. The cough varied and rarely distressed her; in general she lay absolutely motionless with a curious impassive appearance which immediately suggested a comparison with Case 8, in whom this feature was much more prominent. This strange passivity (she was "highly strung" by temperament), in mild degree, persisted for some days after convalescence had begun. The signs in the lungs extended rapidly, and by Sept. 21st it was clear that both lower lobes were entirely consolidated; the percussion note was markedly impaired and tubular breath sounds were well heard over them. Respiration was rapid and shallow, and I think it is fair to say that most physicians at this stage would have been content with a diagnosis of lobar pneumonia if the history of the unusual onset and of the contact with the love-birds had not been available. The physical signs in the chest persisted unchanged for another two days; on the 21st a lung puncture was done on the right side for bacteriological purposes and about 3 c.cm. of rusty fluid was withdrawn from the pleura, but no more could be obtained. On the 23rd there was almost complete silence over the bases behind. The percussion note did not suggest fluid, and I believe that there was at this stage massive consolidation similar to that in Case 8. The breath sounds were faintly audible again on the 24th and were still tubular, but for the next two or three days the lower lobes were almost silent. Subsequently resolution took place fairly rapidly. On the 24th my colleague, Dr. Stanley Barnes, examined her and said that "she would do well for a Parkinson," a suggestion with which Dr. T. L. Hardy agreed when he saw her four days later. Throughout her illness the alimentary symptoms were slight. At one time there was unusual salivation—she seemed in her early torpid period to derive some comfort from constantly blowing bubbles of saliva from her lips—but this cleared up after four days. Distension was never marked, though she passed flatus

freely; the stools were of a curious greenish colour and frequently loose. Vomiting occurred only very occasionally and she took nourishment well throughout. The urine remained normal. Apart from the curious parkinsonian appearance, no abnormal nervous signs were discovered. The same plan of treatment was followed in this case as had been tried in Case 8. On Sept. 19th and 20th she received two doses of serum from relatives who had been inoculated with T.A.B. vaccine on Sept. 16th. Neither of these injections had the slightest effect on her, and it seemed that insufficient time had elapsed to allow of the production of antibodies. The husband of the other patient (Case 8), who had been similarly inoculated on Sept. 7th, kindly allowed us to use his serum, and an intramuscular injection on the 21st of 7·5 c.cm. was followed by a drop of over three degrees in the temperature. After 36 hours the fever rose again to 104° and a similar injection was followed by a like result; further doses were given at daily intervals and appeared to bring the illness to a dramatic end some days earlier than might have been expected. The injections were prepared quite simply by allowing 20 c.cm. of the donor's blood to clot in a sterile tube, and as much serum as separated was used without any special treatment. Fresh blood was taken on each occasion for the following day's injection.

Bacteriological Report.—Neither sputum, urine, blood, nor fæces yielded any organism resembling *B. psittacosis*. Serum collected on Sept. 16th agglutinated both cultures of *B. psittacosis* (National Collection of Type Cultures) at 1 : 900 (not 1 : 1000) dilution, and also a broth culture of salmonella (Mutton) at 1 : 500 (not 1 : 700). An Oxford suspension of salmonella (Mutton) was agglutinated at 1 : 125. Negative results were obtained with salmonella (Newport), *B. dysenteriæ* (Gaertner), *B. typhosus*, and *B. paratyphosus* A and B. A later specimen of blood, taken Oct. 1st, failed to agglutinate broth cultures of *B. psittacosis*, salmonella (Mutton), or *B. faecalis alkaligenes*, but agglutinated suspensions in saline solution of *B. psittacosis* 1 : 20, salmonella (Mutton) 1 : 40, and *B. faecalis alkaligenes* 1 : 20. Saturation with *B. psittacosis* or with salmonella (Mutton) left the agglutination unchanged or even slightly improved for any one of the three organisms, but saturation with *B. fæcalis alkaligenes* removed all the agglutination for that organism and left it unchanged or improved for the other two. Serum collected on Nov. 8th, when the patient was convalescent, agglutinated similar suspensions of *B. psittacosis* and salmonella (Mutton) in rather higher dilution (up to 1 : 100) and an Oxford suspension of salmonella (Mutton) at 1 : 100. There was no agglutination with control normal serum.

CASE 10.—On Sept. 15th, 1929, as Dr. Herbert and I were leaving the house after our consultation on Case 9, we were told that the patient's aunt, who had cared for the sick lovebird for a few days, had become ill and had been sent to bed by her doctor with fever and bronchitis. She was admitted to the Selly Oak Hospital shortly afterwards with a slight temperature (about 100°) and signs of bronchitis and possible consolidation at the base of the right lung. As her condition did not appear grave and as her temperature soon fell to normal, she was transferred to the adjoining infirmary, but was brought back to the hospital when I told Mr. R. P. S. Kelman, the medical superintendent, of my suspicions of the possibility of psittacosis infection. Mr. Kelman was good enough to allow me to see this patient in the hospital on Sept. 21st. She was a feeble old lady of 73, with signs of emphysema and cardiovascular degeneration. A patch of consolidation was found at the right base, but her temperature was then normal; the respirations, however, were hurried—36 to the minute. Slight vaginal hæmorrhage of uncertain origin had occurred that morning and the urine contained albumin; nothing grossly wrong was found on pelvic examination. Dr. Hillier found that her blood serum agglutinated *B. psittacosis* strongly (up to 1 : 500 dilution) and she died a few days later, after developing a fresh patch of consolidation in the left axilla. No post-mortem examination was allowed. It is recognised that infections of the typhoid group in the elderly may follow an almost afebrile course, and in view of the history and positive agglutination this case may fairly be regarded as an instance of psittacosis.

CASE 11.—Dr. E. H. Alton of King's Norton, after reading my earlier communication on this subject, furnished me with the following account of a remarkable case that occurred in his practice.

Early in 1926 a middle-aged man returned to Birmingham from West Africa, bringing with him three young parrots, all of which, within a few days, sickened with diarrhœa and died. Almost immediately after the death of the last of the birds, the man himself, who had previously been in good health, became ill with continuous fever. At the end of a week he was seen in consultation by one of my colleagues at the General Hospital and a diagnosis of typhoid was suggested. A Widal test, however, proved negative. During the second week of illness extensive signs of pneumonia developed in the right lung, and he was again seen by the same consulting physician, who confirmed Dr. Alton's findings and thought the condition was probably due to an unusual influenzal infection. The fever persisted, and in the third week the man was almost continually unconscious. The physical signs in the right lung changed, and in place of well-marked tubular breathing the breath sounds became inaudible. Dr. Alton needled the chest several times, as he thought an effusion had developed, but never found fluid. He was so struck by the silence of the lung that he got his partner, Dr. J. A. Brown, to see the patient, and he also explored the chest with a negative result. The man died at about the end of the third week of illness. The spleen was never enlarged and there were no spots. At the time the possible significance of the contact with sick parrots was not appreciated, but the clinical history leaves no doubt that this was in fact a case of psittacosis.

CASE 12.—On Nov. 29th, in consultation with Dr. Smeeton Johnson, of Kidderminster, I saw, on three occasions, a man of middle age who had an illness that ran a course exactly similar to that of Cases 8 and 9, and my colleague, Dr. L. G. Parsons, who saw both these cases while they were in hospital and also Dr. Johnson's patient, agreed with me that they were clinically indistinguishable.

This man was a pigeon-fancier, and for years he had been daily in close contact with these birds, of which he had over a hundred in his own aviary. There was no definite history of contact with sick birds, but Prof. C. J. Lewis found that his blood gave a slightly positive agglutination for *B. psittacosis* and a negative result for all the other members of the typhoid and salmonella group; in addition the illness was brought to a dramatic end by the injection of serum from a man inoculated some weeks previously with T.A.B. vaccine, exactly as in Case 9. There was a history of a similar illness four or five years previously. The absence of sickness among any of the birds with which this patient was known to have come into contact raises the unpleasant possibility that this disease may be contracted from apparently healthy birds.

CASE 13.—On Nov. 23rd, 1929, a lady, aged 50, purchased a South American parrot which was noticed to be sick on its arrival in her home. The bird developed a nasal discharge, severe diarrhœa, and distressed breathing, and died on Dec. 8th. Two days later the lady herself became ill and was thought to have a cold. On the 13th her temperature was 104° and she had to stay in bed. I saw her first on Dec. 15th with Dr. W. J. Hirst, of Moseley. Her temperature was then 103°, but her pulse-rate was only 96. She complained of intense occipital headache radiating down the neck, but physical examination was quite negative, apart from the presence of a few scattered râles in the left lung. For the next two weeks she had a continuously high temperature, between 103° and 104°, and was often stuporose and completely incontinent. A troublesome cough was present throughout, without expectoration, and she had signs of diffuse bronchitis, but there was no definite consolidation. In the third week her temperature fell by lysis to normal for three days and her general condition improved slightly, but on the twenty-seventh day of her illness she relapsed and had a temperature varying between 99° and 101° for a fortnight; during this period there was definite consolidation at the right base. She now appears to be convalescent, but is mentally very emotional and unstable. Blood cultures taken on the fifth day of illness were sterile, and nothing of significance was recovered from the stools and urine in Prof. Lewis's laboratory. The agglutination reactions by Dr. E. Baylis Ash were as follows. On Dec. 15th (fifth day of illness) the reaction was completely negative to all the typhoid and salmonella group except *B. psittacosis* (Perry), with which there was a positive macroscopic result at a dilution 1 : 15 and microscopic 1 : 10. On Dec. 18th agglutination of *B. psittacosis* was present at 1 : 20 macroscopically and 1 : 40 microscopically. Salmonella (Mutton) was also agglutinated at 1 : 40 dilution, but all the others were still quite negative. On Jan. 17th (during the relapse) all the agglutination tests were quite negative.

Three small injections of serum from men inoculated with T.A.B. vaccine three months previously were given in the early stages of the illness and each was followed by a transient fall in the temperature, but it was not possible to arranged for continued treatment of this kind. In the later stages, after the positive agglutination results had been obtained, several daily injections were given of vaccine prepared from *B. psittacosis* cultures, but they had no influence on the disease.

CASE 14.—This patient was the husband of Case 13. On Dec. 17th, when his wife had been ill for one week, he received at my suggestion a prophylactic inoculation of T.A.B. vaccine (100 millions of each organism). Immediately afterwards he had intense pain at the site of injection, and

an hour later had a rigor, vomited, and went to bed. For the next three weeks he had a moderate temperature (usually from 99° to 102°, but once reaching 104°), intense headache, and great prostration. The lower lobe of the right lung was consolidated one week after the onset of the illness, and there were signs of diffuse bronchitis, to which he had been subject for some years previously. Prof. W. H. Wynn saw him in consultation with Dr. Hirst and myself, and agreed with the diagnosis. *B. psittacosis* vaccine was also given in this case without effect. On Jan. 15th, when he was convalescent, his blood agglutinated salmonella (Mutton) (1·20 macroscopic and 1·40 microscopic) and *B. suipestifer* (1·20 macroscopic). Agglutination tests with all the other members of the typhoid and salmonella group (including *B. psittacosis*) were quite negative. This case ran a course exactly parallel with that of No. 7 of this series.

In connexion with these two cases it should be recorded that after the death of the first parrot a second similar bird was supplied by the dealer and placed in the same cage, which had been thoroughly scrubbed with lysol. This bird was taken to the University laboratory on Dec. 17th, and cultures were made from its nose and fæces with negative results. A few days later a nasal discharge developed, but there was no diarrhœa. The bird was killed on Dec. 29th, and a most exhaustive post-mortem examination showed that its condition was due to a streptococcal septicæmia. No non-lactose fermenting organisms were isolated from any of the organs and the parrot's blood failed to agglutinate the stock culture of *B. psittacosis* (Perry), and also the cocci isolated from the sputum of Case 14. It is clear that the illness of this parrot had no relation to the infection of the human cases.

A Second Group of Three Cases.

Cases 15, 16, and 17, all members of one family, were admitted to the General Hospital under my care at the request of Dr. Hugh Tibbits of Warwick. A parrot was bought on Dec. 19th, 1929, and died unexpectedly on Jan. 1st, 1930, without signs of previous illness apart from a questionable nasal discharge. Another parrot was obtained from the same dealer on Jan. 2nd, and this bird was noticed to be sick at the time of purchase and died on the following day.

CASE 15.—On Jan. 8th a woman of 51 complained of headache, drowsiness, and shivering, and she eventually had to take to her bed on the 12th. Dr. Tibbits saw her later and found signs of pneumonia, and sent her into hospital with the diagnosis of psittacosis on the 16th. On admission she was drowsy and apathetic; her temperature was 101° and the pulse-rate was about 100. The percussion note at the right base was dull, and breath sounds were entirely absent over the whole of the posterior aspect of the right lower lobe. Her temperature fell to normal in three days and remained so, except for trivial rises in the evening to about 99°, for a further four days, and her general condition improved. A few crepitations appeared in the silent area in the lung two days after admission, and breath sounds became audible. There was no cough or expectoration and no diarrhœa or vomiting. My house physician, Mr. Smallwood, found the spleen palpable on Jan. 22nd, but I could not feel it the following morning. A blood count showed a moderate leucocytosis (12,400 white cells with 83 per cent. polymorphonuclear leucocytes). Nothing of significance was recovered from cultures of the blood, urine, or fæces. Serum taken on Jan. 17th (the ninth day of illness) agglutinated *B. psittacosis* (Perry) strongly at 1:20 dilution and feebly at 1:50. There was also a feeble agglutination with salmonella (Mutton), but none with any of the typhoid or others of the salmonella group or with *B. fæcalis alkaligenes*.

CASE 16.—A man, aged 58, the husband of Case 15, was admitted on the same day as his wife—Jan. 16th. He had been ill for five days and almost constantly delirious for three. On admission he was excitable, mildly delirious, cyanosed, and obviously very ill. His temperature was 103°, his pulse-rate was 140, and there were signs of consolidation at the right base. He coughed a little, but there was no expectoration. The spleen was not palpable. The following day his general condition was worse; the right base was dull to percussion and breath sounds were absent; puncture of the chest yielded no fluid. A blood count showed a leucopenia (6000 white cells per c.mm.) A few hours later signs of consolidation were found in the left upper lobe and he died on the afternoon of Jan. 18th. There was no diarrhœa or vomiting. Cultures from the blood, fæces, and urine yielded nothing of significance, and there was no agglutination of any of the typhoid or salmonella group of organisms. A post-mortem examination was made 20 hours after death by Prof. G. Haswell Wilson; the following is the report:

"The body is that of a well-developed, somewhat obese man. There are no external morbid appearances. The pericardial sac is normal. The heart weighs 380 g. No lesion is found in the valves or cavities. The muscle is rather pale, but is not appreciably softened. The coronary arteries show slight patchy atheroma. The lungs are free from adhesions. A few minute petechial hæmorrhages are seen beneath the visceral pleura. There is no evidence of pleurisy except at the right base, where there is an area about half an inch in diameter covered by a thin pellicle of recent fibrinous exudate. The upper lobe of the left lung is completely consolidated, but the lung is not increased in size and is not marked by the ribs. The consolidated lung substance is of a dusky red colour and of a dry and almost crumbling consistence. There is no evidence of suppuration, and the appearances are quite unlike those of an ordinary lobar or broncho-pneumonia. The bronchi are congested and those of smaller size contain a small amount of turbid, blood-stained fluid, with no obvious muco-pus. The unconsolidated lung substance is poorly aerated, congested, and slightly œdematous. Similar changes are seen in the right lung, but on this side the consolidation involves part only of the lower lobe. At the edge of the consolidated area, just beneath the early fibrinous exudate on the pleura, there is a small area resembling ordinary broncho-pneumonia, with a small central bronchus from which muco-pus exudes on pressure.

"The peritoneum is normal. The liver, weighing 1500 g., is pale from cloudy swelling and slight fatty infiltration. The spleen, weighing 300 g., is enlarged and very soft. The pulp is intensely congested and is almost diffluent in consistence. The kidneys together weigh 300 g. The substance is pale from cloudy swelling and the appearance of the cortex suggests the presence of catarrh in the tubules. No lesion is found in the bladder. The suprarenals and pancreas are congested and rather soft. The stomach and intestines are œdematous. The mucous membrane of the stomach shows a few small recent erosions along the greater curvature. The small intestine contains a small amount of slimy, bile-stained material, but it is not congested, and there is no change in the lymph follicles. There is slight patchy congestion in the large intestine.

"The pia-arachnoid covering the cerebral hemispheres is opaque and slightly thickened and the underlying convolutions are slightly atrophied; otherwise no lesion is found in the brain or its membranes. The femur marrow is almost entirely fatty, but there is a small area of pale, very soft, red marrow.

"The changes in the lung are those of a pneumonia of unusual type and do not resemble those found in lobar pneumonia, in ordinary broncho-pneumonia, or in septic pneumonia complicating a septicæmia due to infection by any of the pyogenic organisms. The condition of the spleen, however, suggests that a septicæmia is present. There is no lesion to suggest typhoid fever or other acute enteric infection. In view of the changes found in the body I am of opinion: (1) that death was caused by pneumonia and septicæmia; (2) that the appearances are compatible with the clinical diagnosis of psittacosis."

A preliminary histological examination of the sections of the lung by Prof. Wilson shows that the affected areas are uniformly consolidated; the exudate is fibrinous, and that cells are relatively scanty and almost entirely mononuclear. There are scattered areas of congestion and hæmorrhage, and here and there small patches of œdema without fibrin. There is no selective perivascular or peribronchial distribution of the exudate, as occurs often in influenzal pneumonia. The smaller bronchi are filled with desquamated epithelium; the larger bronchi show a similar desquamation but are quite empty. A certain amount of anthracosis is present in the lung with a slight lymphatic reaction. A more detailed account of the histology is in course of preparation and will be included in a subsequent report.

An exhaustive bacteriological investigation of this case has been undertaken by Prof. C. J. Lewis and Dr. W. T. Hillier. A bacillus, in its sugar reactions resembling *B. fæcalis alkaligenes*, has been recovered from the lungs and spleen (both from cultures made at the post-mortem examination and from stab cultures made three hours after death). Prof. Lewis has also isolated from the lung another type of non-lactose fermenting bacillus, which he thinks may prove to be pathogenic. A complete report will be prepared as soon as possible.

CASE 17.—A man of 25, the son of Cases 15 and 16, was admitted to the General Hospital on Jan. 20th. He became ill on Jan. 16th with headache and diffuse pains about the body, but did not go to bed. There was no vomiting or diarrhœa. On admission his temperature was 105°, the pulse-rate 110, and the respiration-rate 25 per minute. He was torpid and slightly cyanosed and there were signs of consolidation of the right base, with marked tubular breath sounds. Two days later the affected lung was quite silent over the whole of its posterior aspect. Exploration yielded no fluid. On Jan. 24th a few fine crepitations were heard at the right base, but breath sounds were almost entirely absent; at the left base a large area of consolida-

tion, with tubular breath sounds, was present posteriorly. Despite the extension of the pulmonary signs, the respiration-rate was only 24 per minute, and there was practically no cough or expectoration. His general condition has improved and his temperature has fallen by lysis to 101°. A blood-count showed a moderate leucocytosis (9800 white cells per c.mm. with 87 per cent. polymorphonuclear leucocytes). Cultures from the blood, urine, and fæces show nothing of importance. From the lung puncture a bacillus has been obtained similar to that isolated from the spleen and lung of Case 16. His serum does not agglutinate salmonella (Mutton) or *B. psittacosis* (Perry), but does agglutinate the organism recovered from the spleen of Case 16 at a dilution 1 : 40.

Four Additional Cases.

CASE 18.—That the clinical picture may be distinctive is shown by the fact that one of the nurses in charge of Cases 13 and 14 told me that she was sure that she had had a similar case some months previously, though at the time it had been regarded as typhoid. Dr. H. C. Rook, of Worcester, in reply to my inquiry, was good enough to send me the following account of the patient to whom the nurse referred :—

There is no doubt that the case brought to your notice was psittacosis. A lady, aged about 35, previously the subject of a hemithyroidectomy for Graves', bought a green Amazon parrot while on holiday at Exmouth toward the end of August, 1929. It immediately moped and was attended by her day and night until its death on Sept. 2nd.

I saw her on Sept. 4th (T. 101°, P. 90) with a history of two days' malaise. On the 8th (T. 102°, P. 100) there was a left-sided rub, and on the 9th, when I saw her with Dr. M. Campbell, of Droitwich, a small left effusion. A tentative diagnosis of typhoid was made, and with this a London consultant who saw her on the 10th agreed (T. 104·8°, P. 110). There was no rash and no enlargement of spleen. Blood count (10th): red 4,600,000, white 6300, and agglutination para. B. The bacteriologist said that he had never seen clumping occur so rapidly—dilution not stated. The temperature remained 104°–105° for a week and was not materially altered by cold baths, the first drop occurring 48 hours after a fixation abscess had been injected. During this time the patient was semi-conscious, with continuous delirium, pain in the neck muscles with head retraction, constipation, frequency and a highly acid urine with bacilli present in quantity. The abdomen was slightly tumid with tenderness over the descending colon, no splenic tenderness, and no rash. The pleuritic effusion, a thin layer, covered a large area; cough was constant with slightly blood-stained sputum. The pulse always remained lower than corresponded with the temperature in spite of the old-standing Graves's disease. Normally her pulse is 100–110. The tongue was brown and dry with sordes. The heart condition gave rise at times to considerable anxiety. The temperature fell by lysis with a corresponding amelioration of symptoms, and by Oct. 3rd the patient was well on the way to recovery.

CASES 19, 20, 21.—Dr. Coutts, of Dudley Port, has kindly provided me with the following account of three cases occurring in his practice.

In April, 1928, a parrot, obtained from a dealer, developed sickness and diarrhœa the day after its arrival in the house of one of his patients and died a few days later. In the house lived two adults and three boys then aged 11, 9, and 7, all of whom were perfectly well. Within a few days of the death of the parrot the eldest boy was seized with vomiting, diarrhœa, and abdominal pain. Profuse and repeated epistaxis occurred. The vomiting and diarrhœa lasted for a fortnight, and he also had signs of bronchitis and patchy broncho-pneumonia. His temperature was moderately raised. The total duration of illness was about eight weeks, and his condition for most of that time was serious. His subsequent health has not been good, as he is still liable to occasional attacks of abdominal pain. The two younger boys both had a similar illness, but milder in degree; the youngest was the least affected. They were taken ill within a week of the onset of the illness of the eldest. All the boys had handled the parrot, but the eldest had petted it most. Neither of the adults was affected.

Review of the Clinical Aspect.

With the four cases described in my first communication,[1] those now reported make a total of 21, of which five proved fatal.

It is fairly accurate to say of the severer cases that they resemble typhoid septicæmia in retaining a relatively slow pulse, despite a high continuous fever. Even before the development of the unusual pulmonary signs, however, certain features distinguish them from true typhoid; the onset is usually more sudden and the temperature rises more rapidly. Headache is intense, generally occipital, and often associated with slight cervical rigidity. Epistaxis occurred in one patient. Sweating was sometimes severe. Diarrhœa and vomiting sometimes occur in the early stages, but as a whole the alimentary symptoms, apart from distension, have been trivial, except in the case of the three children (Cases 19–21). The spleen became palpable in one case, and then only for a few hours; no rose spots have been observed. In one case a typhoid-like relapse occurred. The outstanding feature of the clinical picture is the involvement of the lungs. At the onset signs of slight shifting bronchitis appear, to be followed in a few days by those of extensive consolidation manifested by impairment of the percussion note and the presence of tubular breath sounds. Still later the percussion note becomes completely flat, and breath sounds in the affected area disappear. This curious silence of the lung may persist for some days after the temperature has fallen and the general condition has improved. A whole lung may be affected in this way. Resolution occurs very rapidly and completely, and is accompanied by fine crepitant râles. Repeated explorations of the chest showed that these signs were in no way due to pleural effusion, and I concluded that they were associated with obstruction of the smaller bronchi. Confirmation of this opinion was afforded by the post-mortem of Case 16.

Certain negative features in the respiratory condition are important. Although cough is frequent and at times incessant, it is never painful, and expectoration is scanty and frequently absent; only twice was any rusty sputum obtained (Cases 5 and 18). Respiration is not hurried unless the area of lung involved is very extensive; it was easy and never "pneumonic" in character. Pleuritic friction was found only once.

The nervous signs described in Cases 8 and 9 are noteworthy, particularly as they were also marked in Case 12 and to a lesser degree in Cases 15 and 17.

Although the clinical course of most of the cases forms a fairly characteristic picture, it is clear from a review of the whole of them that the symptoms and signs may be but slight and equivocal—even when the disease proves fatal (Case 10)—and a diagnosis would be frankly impossible unless the history of contact with sick birds were elicited.

Ætiology of the Condition.

In our earlier investigations a review of such literature as was available led us to concentrate our attention on the discovery of an organism of the typhoid or salmonella type. In the first case, a bacillus corresponding fairly well with this group was recovered from a local parotid swelling, but it must be admitted that the identity of this organism was not completely established, as the importance of the matter was not then realised. Despite the exhaustive search that has been made in some subsequent cases, neither *B. psittacosis* nor any similar organism has been recovered, either from a human patient or from a sick bird. This negative result, in agreement as it is with the work carried out at the London Hospital, favours the view put forward recently by Bedson and Western and Levy Simpson, that the disease may be due to a filtrable virus, and it cannot be denied that their recent communications[5] afford considerable experimental support for their suggestion. Prof. C. J. Lewis, however, has recently isolated from the cage of the parrots responsible for the infection of Cases 15, 16, and 17 an organism definitely identical with *B. psittacosis* and salmonella (Mutton). Experimental work with this organism is still in progress, but it has already been shown that subcutaneous inoculation is fatal within a few hours to a guinea-pig, and that a minute intrapulmonary injection has been followed by death from pneumonia within two days. This work of Prof. Lewis's renders it inadvisable, at the present stage, to dismiss *B. psittacosis* as the possible

agent of infection, and certain other considerations in this connexion are important. In the first place, the clinical picture of the disease is extremely suggestive in many cases of a typhoid infection, and the incubation period, where it can satisfactorily be determined, is that of the typhoid group. Again, although too much reliance cannot be placed on these reactions, there is the definite fact that three cases gave a positive agglutination with organisms of the typhoid group (two to para. B., Cases 1 and 18, and one to *B. typhosus*, Case 5), and several others have given similar results with *B. psittacosis*—in three instances (Cases 8, 9, and 10) in high dilution. The post-mortem appearance of the lung (Case 16) is also suggestive of an infection by a non-pyogenic organism, and it will be interesting to see if a similar condition in animals or birds can be produced experimentally with the strain of *B. psittacosis* isolated by Prof. Lewis.

Finally, although the negative bacteriological results cannot be neglected, it must be remembered, as Tidy [6] has pointed out, that in epidemic human infection with the salmonella group the causal organism may only be recovered in a very small proportion of cases. For these reasons, therefore, I feel that the precise ætiology of psittacosis is not yet established, and that suggestive as is the work of Bedson and Western and Levy Simpson, it is still uncertain that the disease is entirely a virus infection.

An interesting point in our investigations has been the recovery of an organism resembling *B. fæcalis alkaligenes* from the lungs of Cases 8, 16, and 17. A similar organism was found independently in two laboratories in the heart blood, trachea, crop and bone-marrow of the love bird responsible for the infection of Cases 9 and 10, and also in the fæces of its mate. Feeding experiments with this organism did not give any evidence of toxicity with love birds proved to be free of it, but it may have some importance in association with *B. psittacosis* as a secondary invader.

Conclusion.

A critical survey of these cases leads almost inevitably to the conclusion that serious illness in man may be due to contact with sick parrots or love-birds. The history of Case 12 suggests that apparently healthy birds may also occasionally be responsible for human infection.

The exact means by which the disease is transmitted to man still remains obscure, and I have anxiously considered the possibility that the association with sick birds in these cases was nothing more than a strange coincidence. That facile explanation must, I think, be rejected for the following reasons: (1) The association of sick parrots with unusual forms of human illness was recognised 40 years ago, and a considerable number of cases of this type have since been reported at varying intervals from different parts of the world, though strangely enough very little attention has been given to the matter in this country. (2) The clinical course of the cases described conforms with none of the ordinary types of pneumonia, or typhoid, or infection with the salmonella group. (3) The post-mortem findings in Case 16 are suggestive of an unusual form of septicæmia with lung involvement of a distinctive character, which Prof. Haswell Wilson had not previously encountered. (4) The number of cases that have come to my notice seems to be too large to permit the hypothesis of coincidence and, as I have already said, since the publication of my first paper on this subject [1] a considerable number of histories of illness have been sent to me which warrant the opinion that they were in fact instances of this type of disease. Of these I have included five in this series.

In view of the predominance of the parrot as the agent of infection, the retention of the name "psittacosis" for this group of cases is justifiable at the present time, but is it correct to assume that it is a specific disease due to a particular micro-organism? The clinical similarity of the cases and the singular post-mortem findings suggest that it well may be, but certain considerations render a complete acceptance of that position impossible. Perry's investigation [4] showed that parrots might be heavily infected with an organism indistinguishable from salmonella (Mutton). It is this organism which is preserved in the National Collection of Type Cultures as *B. psittacosis*. So far as I am aware, no case of human infection followed contact with his birds, but obviously it was possible, and had it occurred the symptomatology might have been quite different from that recorded in my cases in which salmonella (Mutton) has not been found. There is, further, the result of the examination of the second parrot associated with Cases 13 and 14; in this instance the bird died of a streptococcal septicæmia, and human infection from it is a possibility which cannot be denied.

Finally, is psittacosis as rare a disease in this country as the scanty references in the literature suggest? The fact that cases have come to my notice at fairly regular intervals since my attention was first directed to the matter, and that Case 11 occurred in 1926, and Cases 19, 20, and 21 in 1928, strongly support the view that similar types of infection have prevailed in England, and that they have not been hitherto recognised.

References.

1. Thomson, A. P.: THE LANCET, 1929, ii., 115.
2. McCrae, T.: Modern Medicine, Osler and McCrae, 1925, i., 128.
3. McClintock, A.: Publication No. 1 of McClintock Foundation, New York, 1925, Pleomorphism in Bacterial Protoplasm: A Study in Psittacosis.
4. Perry, H. M.: Brit. Jour. Exper. Path., 1920, i., 131.
5. Bedson, S. P., Western, G. T., Levy, S. Simpson: THE LANCET, Feb. 1st, p. 235, and Feb. 15th, p. 345.
6. Tidy, H. L.: THE LANCET, Feb. 1st, p. 238.

DISABILITY FOLLOWING CERTAIN FRACTURES.[1]

BY A. J. COKKINIS, M.B. LOND., F.R.C.S. ENG.,

SURGICAL REGISTRAR, ST. MARY'S HOSPITAL; LATE SURGICAL REGISTRAR, ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.

THE frequency of disability following fractures and the difficulties surrounding its treatment are too well known to require emphasis. Suffice it to say that no medical or surgical condition attracts more public notice, or figures more largely in the Press. It is frequently the cause of legal actions, the consequences of which may be disastrous to the medical men concerned.

From the practitioner's point of view the important problem is not the treatment of disability, but its prevention. This may be difficult or easy, but disability is very rarely inevitable. I propose to limit myself to fractures of the shoulder, the elbow, and the ankle, as these are particularly likely to be followed by disability. Colles's fracture is not included, for it forms the subject of a special study I am now engaged upon and the results of which I hope to publish in the near future.

Disabilities Following Fractures of the Shoulder.

Most cases of disability after fracture of the shoulder region are attributed either to adhesions or to osteo-arthritis. Injuries to the circumflex nerve, the brachial plexus, and the axillary vessels occur, but are comparatively infrequent.

Adhesions are exceedingly common and are responsible for much disability. Fractures of the shoulder are frequently treated with the arm bandaged to the side, a pad in the axilla and the forearm supported in a sling across the chest, this fixation being maintained for two or three weeks before movements are begun. With such treatment, adhesions are almost bound to develop, particularly in or around the lower

[1] Delivered before the Ilford Medical Society on Dec. 16th, 1929.

and front parts of the joint. These adhesions produce painful limitation of movement and interfere grossly with the function and usefulness of the joint. The movements mostly limited are abduction, external rotation, and, to a lesser degree, hyperextension of the arm. In fractures of the anatomical neck of the humerus or of the glenoid cavity of the scapula, the adhesions tend to be mainly intra-articular, and result from the organisation of blood clot in the joint or from the healing of tears in the synovial membrane or capsule. Both these fractures run into the shoulder-joint and the adhesions may be looked upon as natural consequences of the traumatic arthritis which ensues. The adhesions which follow fractures of the surgical neck of the humerus are mainly extra-articular, and result from the healing of tears of the capsular ligaments or of the muscles and tendons closely grouped around the joint. To enable the movement of abduction to occur, the lower part of the capsule of the joint is attached to the surgical instead of to the anatomical neck, thus securing for itself a certain necessary degree of looseness. In fracture through the surgical neck—which, by the way, is much the commonest fracture of the shoulder region—the lower part of the capsule is frequently torn. Unless special precautions are taken, the healing of this tear will be followed by contraction or adhesions in the lower part of the capsule, with the result that the movement of abduction becomes seriously limited. Abduction, which is the most necessary movement of the shoulder, is unfortunately also the weakest. It is lost with surprising ease, mainly owing to the development of adhesions, but also because it opposes gravity and is itself opposed by very powerful adductor muscles.

There should never be any difficulty in diagnosing adhesions following fractures of the shoulder. There is progressive limitation of movement in certain directions only, other movements remaining free. Attempts to obtain movement beyond what is permitted by the adhesions cause severe pain. The patient is unable to raise or turn his arm without pain, and soon loses confidence in, and becomes afraid of, using the joint. The organic disability thus becomes aggravated by functional weakness, and the latter may persist even when ful movement has been restored by treatment.

In all cases absorption of hæmorrhagic exudate should be hastened by early massage, perhaps coupled with radiant heat. When the fracture is incomplete or soundly impacted, as is often the case with the anatomical neck, adhesions can be completely prevented by early mobilisation. Gentle, supported passive movements are commenced on the third or fourth day and are gradually increased until by the end of the week the arm is abducted to a right angle. The movements should be performed by the practitioner himself, and to ensure that the abduction is not the result of rotation of the scapula, this should be controlled by an assistant. In these cases the only support which is necessary is an efficiently applied sling, which is removed once or twice daily for the exercises.

When the fracture is complete, early mobilisation is unfortunately impracticable owing to the danger of causing redisplacement. It is always possible, however, to reduce the adhesions—and the disability occasioned by them—to a negligible minimum, by supporting the shoulder in abduction during the fixation stage (three weeks). For this purpose either a skeleton abduction splint or a plaster-of-Paris spica may be used. Incidentally, this position usually secures far better alignment of the fragments than can be obtained with the arm at the side. In this position of abduction, effective adhesions can only form in and around the upper part of the joint, and these will be readily stretched by the weight of the arm when the limb is brought down again.

At an early stage the adhesions can be stretched and the lost movements regained by systematic exercises, but the process tends to be long and tedious and, unless due care is taken, there is danger of fracturing the young callus and of causing repeated trauma which may terminate in osteo-arthritis. When a reasonable trial of exercises fails to restore mobility, the adhesions must be broken down by manipulation under anæsthesia, sufficient time (10 to 12 weeks) having first been allowed for the consolidation of the fracture.

Osteo-arthritis is a common complication of fractures of the shoulder in middle-aged and elderly people, and is especially likely to follow fractures of the anatomical neck of the humerus. Its development is a sequel to trauma of the joint, particularly when there is unreduced displacement of the articular surfaces and rough ends project into the joint cavity. Osteo-arthritis of the shoulder causes much pain and stiffness, both of which are aggravated after rest. Abduction is again the movement mostly limited. Creaking can be felt over the joint on movement, and there is usually a characteristic X ray picture.

Absolute reduction of displacement and restoration of smooth intra-articular surfaces is the ideal prophylactic measure, but unfortunately this is not always practicable. Much can be done to alleviate the symptoms by physical measures, such as avoidance of strain, massage and careful exercises, diathermy and radiant heat. Foci of infection must be looked for and treated. Very often, however, these measures fail to give adequate relief, and we have to resort to excision of the head of the humerus to overcome the disability. The results of this operation are usually quite satisfactory.

Disability Following Fractures of the Elbow.

In this group are included fractures of the lower end of the humerus, the upper end of the radius, and the coronoid process of the ulna. Disability after these fractures is mostly produced by the following complications: stiffness of the elbow, ischæmic contraction, injury to the ulnar nerve, and myositis ossificans. Malunion, with alteration of the carrying angle, is another cause of disability, but can be easily avoided by securing accurate reduction of the fracture.

Stiffness of the Elbow.—Disability from a stiff elbow is a very frequent result of fractures of this region. The limitation of movement may be produced by adhesions or by excessive callus formation and can usually be attributed to faulty after-treatment. Modern teaching rightly insists that these fractures after any displacement is reduced should be put up with the elbow in full supination and in as much flexion as is consistent with a free circulation. There is much difference of opinion, however, on the subsequent treatment. The usual procedure is to remove the sling or retentive bandage once daily, after the fourth or fifth day, for massage and active extension of the elbow to the limit of painlessness. The range of movement is increased daily, full extension being aimed at by the end of the third week. Theoretically this method of treatment should be above criticism, but its practical results are often most unsatisfactory. The elbow is an exceptional joint in that early mobilisation, instead of preventing stiffness, actually seems to predispose to it. I think the explanation is to be found in the marked and well-known tendency for excessive callus to be formed in this region. Early movement naturally throws a strain on the young callus and leads to further overgrowth of it. The eventual result is a progressive limitation of movement, especially of flexion, although for the first few weeks a good range of movement may be obtained. Further damage is often inflicted by the misguided zeal of energetic masseuses who, in the erroneous hope of dispersing adhesions, actually produce them by the so-called petrissage or deep kneading variety of massage. This traumatises the young fibrocellular tissues thrown out in the process of repair, and thus leads to fibrosis and scarring in and around the joint.

Confronted by a progressively stiffening elbow, which seems to become worse the longer massage and exercises are continued, the practitioner often falls into the error of trying to mobilise the joint by forcible manipulation under an anæsthetic. This may improve matters for the moment, but the elbow is curiously intolerant of such treatment, and the ultimate result

is more callus, more adhesions, and worse stiffness. Occasionally even absolute ankylosis may follow.

This unfortunate experience is leading to the recognition that fractures of the elbow should be treated by a prolonged period of complete immobilisation in flexion and supination. This may be carried out by loops of adhesive plaster or by a "figure of eight" plaster-of-Paris bandage. Three weeks is the period recommended by many orthopædic surgeons, but in my opinion four weeks would not be too long. The elbow, of course, is the only joint immobilised, the shoulder, wrist, and hand being moved from the first. Massage should be avoided absolutely. At the end of the four weeks the retentive appliance is removed, the arm supported by a sling, and gentle active movements commenced. After another fortnight the patient is encouraged to use the limb and the sling is discarded. The elbow will be rather stiff at first, but the movement which will be limited is extension, and it is surprising how easily this stiffness is worked off with functional use, especially in children, who form a large percentage of the patients. My experience has convinced me beyond any doubt that prolonged immobilisation followed by functional use is the correct treatment for these fractures. Its adoption, however, requires a little courage, for the surgeon will have to resist not only his own instinct, which will urge him to employ the measures he has found effective in other fractures, but also the demands of the patient, and especially of the parents, who may not unnaturally consider the treatment old-fashioned and its immediate results disappointing. The ultimate result, however, will more than justify these measures.

Ischæmic contraction is one of the worst disasters that can result from faulty treatment. It is a common complication of fractures of the elbow only, and is caused by tight splinting or bandaging. Nowadays, the cases usually follow fixation of the elbow in acute flexion, without allowance for the post-traumatic œdema which follows the fracture. Children are more liable than adults, because their complaints of pain or tightness are apt to be ignored and also because their arteries are more compressible. The first symptom of the condition is pain, which is complained of within a few hours of the constriction. This is rapidly followed by swelling, coldness, and blueness of the hand. Within 24 hours the characteristic deformity, known as Volkmann's contracture, has made its appearance. The elbow is flexed, the wrist flexed and pronated, and the fingers clawed into the palm. On removal of the splints or bandage the muscles of the front of the forearm are felt to be hard and doughy, while active movements are markedly diminished and it is impossible to extend the fingers and wrist. Occasionally there is a glove-like anæsthesia of the hand and fingers. Pathologically the condition is an ischæmic myositis, and results when the muscles have been subjected to a partial but prolonged deprivation of their blood-supply The affected muscles first become œdematous and, unless the constriction is rapidly removed, they undergo a kind of coagulation-neurosis and very soon become doughy, shortened, and paralysed. An interstitial fibrosis follows and matts the muscle-bellies into a firm inextensible mass. The resulting disability is often absolutely crippling, and in neglected cases the ultimate outlook is extremely bad.

Ischæmic myositis is a condition which need never occur if reasonable precautions are taken. When splints are used they should be well padded, while bandaging should never be tight. Ample allowance must be made for post-traumatic œdema and, above all, fractures of the elbow should never be put up in acute flexion before the œdema has subsided. A comfortable degree of flexion (130° to 140°) is all that is necessary at first. A careful watch should be kept on the pulse, and at the first complaint of pain or constriction or the first sign of swelling, coldness, or blueness of the hand the splints or bandage must be removed and the limb massaged and moved.

Once the contracture is established, chief reliance must be placed on passive stretching of the contracted structures. The distal joints are straightened first, starting with the fingers, the proximal joints being flexed to relax the shortened muscles. The ground gained is preserved by splinting, further splints being superimposed as more proximal joints are extended until all tendency to contraction has been overcome. If these measures fail, some benefit may be expected from operation, but the ultimate results are usually poor, as the fibrosed muscles can never recover normal function.

Myositis Ossificans.—The traumatic variety of myositis ossificans is an uncommon but important cause of disability after fractures of the elbow. The fractures are usually incomplete, the periosteum being torn and bone cells escaping into the muscle-tissues. As a result masses of true bone form, mostly in the substance of the brachialis anticus, and cause considerable pain and weakness, besides interfering to a degree with the movements of the joint. These masses can be easily recognised in a radiogram. If the cases were left alone the condition would soon subside and the ultimate disability would be nil. But unfortunately the lesion is often aggravated by injudicious physical therapy, especially by deep massage and forcible movements. The result of such treatment is to provoke a reaction of the osteogenetic tissues and a further escape of bone cells, until quite large masses of bone may be formed, with progressive disability as the ultimate outcome. This, then, is another argument in favour of prolonged immobilisation and against the use of massage and early movements in fractures of the elbow.

Injuries of the Ulnar Nerve.—The ulnar nerve is mostly injured in fractures involving the internal condyle of the humerus. In the great majority of cases the nerve injury is actually coincident with the fracture and is caused by the original violence and not by the fracture itself. This applies not only to the ulnar nerve but also to all nerve injuries complicating fractures. Secondary involvement of a nerve by a perineural fibrosis or by the friction effect of callus does occasionally occur, but is very much less common. The belief that nerve injury is produced by a nerve being caught in and compressed by callus is absolutely erroneous, although it may be comforting to the practitioner who has overlooked a nerve lesion existing from the first, and who only discovers it when the splints have been removed and functional use of the limb resumed. Safety can only lie in strict observance of the rule that all cases of fracture should be investigated for a possible nerve injury at the very first.

Disability Following Fractures of the Ankle.

No fractures are responsible for more disability than those of the ankle. Bad results are, in fact, so common that a feeling exists among many practitioners that a degree of disability is inevitable after these fractures. This, in my opinion, is quite an unjustifiable attitude to adopt. Admittedly, the treatment of fractured ankle is characterised by peculiar difficulties, but it is perhaps not adequately realised that all these difficulties can be overcome, and that it is possible to obtain very satisfactory results in the vast majority, if not in all cases, provided certain essential principles of treatment are scrupulously observed. Nearly all cases of disability can be attributed to one of three complications: gross malunion, traumatic flat-foot, and osteo-arthritis. It can be stated quite emphatically that all these causes of disability are directly or indirectly caused by errors of treatment, and therefore that they can all be prevented.

Gross malunion occurs after fractures with marked displacement, which have either been neglected or treated very inefficiently; these cases are becoming much less common. Many patients with gross deformity after a fractured ankle retain remarkably good mobility of the ankle and tarsal joints, others develop a stiff and painful ankle, but they all complain of weakness and instability and find walking difficult. To prevent malunion it is necessary to secure absolute reduction of every element of displacement at the first. Fractures of the ankle vary considerably in

their ætiology and in the resulting displacement. In the great majority of cases the essential injury is a fracture of the lower end of the fibula caused by violent abduction or external torsion of the foot. The fracture may be transverse and occur a little above the external malleolus, but more often it is oblique and runs through the malleolus itself and into the joint. In some of these cases the fracture of the fibula is uncomplicated, the tibia and ligaments remaining intact, without any displacement. More frequently, however, the internal lateral ligament is ruptured or the internal malleolus is avulsed by a more severe degree of violence. In these cases the lower end of the fibula, with the foot, are displaced outwards into a valgus position, and there is frequently some overlapping of the fragments, with shortening of the fibula. Occasionally there is marked backward displacement of the foot in addition, but this is generally caused by an associated fracture of the posterior margin of the lower end of the tibia.

No matter how severe the displacement, accurate reduction can nearly always be obtained by manipulation under an anæsthetic. The essential steps in the technique are as follows:—

The knee is first flexed to relax the tendo Achillis. The surgeon then grasps the foot with one hand and the leg with the other, and very deliberately corrects every element of displacement. In the usual case of fracture with outward displacement the foot should be forcibly pulled down, and then twisted inwards until the astragalus is brought completely under the lower end of the tibia. Definite contact must be made between the astragalus and the internal malleolus. In this manner the outward displacement is corrected and the fibula realigned and restored in length. It is this realignment of the fibula which is the essential step in the reduction of the fracture. In addition, any backward displacement must be corrected by pulling the heel forwards until full dorsiflexion of the ankle is obtained.

The crucial part of the treatment lies in the fixation of the limb in a retentive apparatus, without allowing redisplacement to occur. Actually the danger of this is exaggerated, but undoubtedly the safest thing to do is to apply a three-piece sectional plaster case, which completely overcomes the risk of redisplacement. First the foot and then the leg are encased in plaster bandages, a two- or three-inch interval being left at the fracture site. When the leg and foot pieces have hardened, the third piece of plaster is applied by an assistant, while the surgeon holds the foot in full inversion and slight dorsiflexion. Great care must be taken to prevent circulatory embarrassment by adequate padding, and it may be necessary to remove the first plaster after the œdema has subsided and apply a fresh and closer-fitting case. In three weeks the plaster is removed, a light bivalved case is applied, and movements started. Excellent reduction can be obtained by the above technique, even in fractures with gross displacement. Six months after the fracture the functions of this patient's ankle and foot were absolutely normal.

Traumatic flat-foot is an exceedingly common result of fractures of the ankle. Although predisposed to by shortening of the fibula, the main cause is premature and unguarded weight-bearing, which has the effect of causing the young callus to yield and so leads to progressive valgoid displacement of the foot. This variety of flat-foot is curiously painful and rigid, and causes very severe disability. At first the rigidity is produced by muscle-spasm, but it becomes fixed later by the formation of adhesions.

Fortunately, the prevention of traumatic flat-foot is a simple matter; the essential point is to prohibit any weight-bearing until the end of the second month. For the first six months after this protection should be afforded by wedging up the inner border of the shoe by one-third to half an inch, while in heavy people an outside iron with inside T-strap is recommended in addition. Either boots or strong shoes should be worn for the first few months. When flat-foot is an accomplished fact it is best treated by thorough mobilisation under an anæsthetic, the object being to break down adhesions and restore the arches of the foot. For a few weeks the correction should be maintained by encasing the foot in a bivalved plaster in full inversion. After this the patient is allowed up with a thickened inner border of the shoe and a long arch support, mobility of the joints being preserved by massage and exercises.

Osteo-arthritis can be attributed to incomplete reduction of displacement. The joint-line is broken and rough ends project into and irritate the joint, and osteo-arthritis is the result. The older the patient the greater is the likelihood of osteo-arthritis. The ankle becomes swollen, stiff, and very painful, the patient being severely disabled.

The prevention of osteo-arthritis depends entirely on securing absolute reduction of displacement, which must in all cases be immediately confirmed by X rays. If the radiogram shows any residual displacement, it is wiser to obtain exact anatomical reduction by open operation than to leave things to nature.

Clinical and Laboratory Notes.

A CASE OF ANEURYSM OF THE HEART.

By W. S. Russell Thomas, M.B. Camb.

THE following case presents some interesting features.

A fairly stout man, aged 58, died suddenly after defæcation. He had not consulted a doctor for years, and, according to his wife, the only complaint she had heard him make about his health was of some shortness of breath and occasional pain over his heart.

Post-mortem examination revealed a distended pericardium, containing a very large quantity of blood. The heart was removed very carefully. It was larger than normal, and there was a good deal of fatty infiltration, but the most striking feature was an obviously thin-walled sacculation, bigger than the half of a walnut shell, on the anterolateral side of the left ventricle. On the superior part of this sacculation was a ragged hole through which a pencil could be passed.

The mitral and aortic valves were slightly thickened and the left ventricle dilated, with walls somewhat thickened at the base, but rapidly thinning towards the apex. The thickness of the walls above the sacculation was about one-eighth of an inch; at the sacculation only the thickness of the membranes of a fœtus, and nearer the apex they became slightly thicker, but not more than one-eighth of an inch. The myocardium showed definite signs of fatty degeneration, and the aorta some patches of atheroma; otherwise there was nothing abnormal.

The other organs were in fair condition except for one stone in the gall-bladder, and what appeared to be a small quantity of pus in the pelvis of the right kidney; the kidney substance was almost normal.

Here, then, was a man with an extremely thin-walled left ventricle—so thin in one part that it formed a very marked sacculation—yet feeling well enough to work. His symptoms were not sufficient to make him want to consult a doctor. One day the sacculation became so thin that it burst after the act of defæcation, and death followed almost immediately.

CASE OF GANGLIONIC NEUROMA OF THE MEDIASTINUM IN A CHILD AGED NINE.

By W. C. Harvey, M.D. Glasg., D.P.H.,
MEDICAL SUPERINTENDENT, DUMFRIES AND GALLOWAY SANATORIUM, LOCHMABEN.

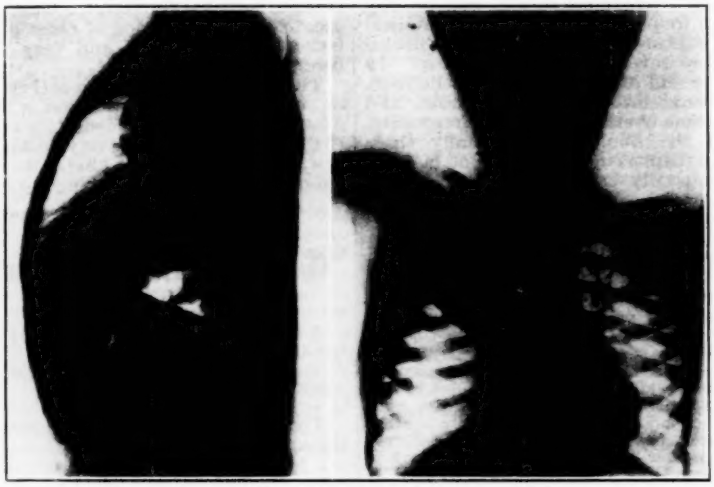
THE following are some notes on a rather unusual and interesting case which was recently admitted to the Dumfries and Galloway Sanatorium, Lochmaben, for observation purposes.

A child, aged 9 years, was said to have been quite well until May, 1928, when she developed broncho-pneumonia. After her recovery from this she was left with a persistent cough

which was worse at night, and in addition she suffered from night sweats and an apparently genuine lassitude. At times she became very breathless and cyanosed and was absent from school for prolonged periods. At other times she would be almost free from symptoms. After a period during which she did not improve, the family doctor called in the tuberculosis officer for Kircudbrightshire, in which county the child resided. Tuberculosis was rightly suspected, and the sputum, which was occasionally copious, was examined. No tubercle bacilli were found, but there was an increase of albumin in the sputum and it was therefore decided to send her to the sanatorium for a period of observation. She was accordingly admitted to Lochmaben on July 7th, 1929.

The child was well-nourished and looked quite healthy apart from a rather marked sallowness of the skin. Physical examination of the chest revealed a pronounced dullness over the upper lobe of the right lung and in this area the breath sounds were considerably diminished posteriorly, but were bronchial in nature in front. No adventitious sounds were audible at any time and there was no marked change in vocal resonance. The child's voice was harsher than normal. She was observed over a short period and the temperature was found to be perfectly normal, while the pulse-rate was quite steady. The Pirquet test was mildly positive.

An X ray film of the chest was taken and revealed a most peculiar condition. A large mass, of a circular shape and with a well-defined margin, was seen to be filling up the whole of the upper lobe of the right lung. The mass was contiguous as far as could be seen, with the chest wall dorsally, and was causing a "kinking" of the trachea. It was very difficult to tell from the radiogram whether the mass was extra- or intra-pulmonary in origin, and the film was accordingly sent to Dr. Woodburn Morrison, radiologist, Royal Infirmary, Edinburgh, for his opinion. Dr. Morrison sent back word that he could not make up his mind on the point in question, and suggested that the child should be sent to Edinburgh for further investigation. This was done and a diagnostic pneumothorax was performed. Further radiograms (see Figures) revealed the fact that the mass was extra-pulmonary and quite free from the chest wall. The provisional diagnosis of a cyst, either dermoid or hydatid, was made and permission to operate was obtained, the child then being handed over to Mr. Bruce Dick for operation.



Lateral and anterior radiograms of the chest, showing position of the tumour. In the films the border of the lung could be traced through it—i.e., the tumour projected beyond the lung on all aspects.

On Oct. 26th Mr. Dick, under local anæsthesia, removed about one inch of the second and third ribs posteriorly, fixed together the visceral and parietal pleura in the neighbourhood and made a preliminary investigation of the mass. Rather to everyone's surprise it was discovered to be a tumour of a lipomatous nature situated outside the lung and completely encapsulated. The wound was then stitched up and the child left for a week. Seven days later the wound was reopened under a general anæsthetic for the removal of the tumour. The removal was not easy, as the tumour was large and had a small pedicle attached to the mediastinum. Eventually, however, it was removed successfully after being freed from its capsule. The child ran a temperature for a few days, but after that she made an uninterrupted recovery and within three weeks of the operation was up and about and ready to go home. Further radiograms have shown that the lung has fully re-expanded. A certain harshness of the voice which was present before the operation disappeared.

The sections of the tumour showed that it was composed of ganglionic nerve-cells and non-myelated nerve-fibres. The stroma consisted mainly of fatty tissue.

As there are very few cases of mediastinal tumours of this nature on record, this one appears to have some interest. A feature of the case was the difficulty in diagnosis since the symptoms and, to a certain extent, the signs simulated hilar tuberculosis rather closely. Indeed, even when tuberculosis had been excluded, the diagnosis was not finally cleared up until exploratory thoracotomy was performed.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 8TH, 1930.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 374 (last week 354); scarlet fever, 2727; diphtheria, 1975; enteric fever, 34; pneumonia, 1332; puerperal fever, 45; puerperal pyrexia, 111; cerebro-spinal fever, 9; acute poliomyelitis, 12; encephalitis lethargica, 20; dysentery, 12; ophthalmia neonatorum, 87. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the Metropolitan Asylums Board on Feb. 11th–12th was as follows:—Small-pox, 571 under treatment, 26 under observation (last week 558 and 28 respectively); scarlet fever, 2310; diphtheria, 2786; enteric fever, 16; measles, 1003; whooping-cough, 95; puerperal fever, 22 (plus 13 babies); encephalitis lethargica, 120; other diseases, 15. At St. Margaret's Hospital there were 12 babies (plus 3 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox or enteric fever, 76 (32) from measles, 12 (2) from scarlet fever, 31 (6) from whooping-cough, 61 (12) from diphtheria, 60 (18) from diarrhœa and enteritis under two years, and 89 (18) from influenza. The figures in parentheses are those for London itself.

Fatal cases of measles were concentrated at Manchester 10, Portsmouth 9, West Ham 8. Deaths from whooping-cough were much more widely distributed, with a maximum of 4 at Bradford. Diphtheria claimed 7 victims at Liverpool and 4 at Cardiff. No great town recorded more than 3 deaths from influenza.

The number of stillbirths notified during the week was 302 (corresponding to a rate of 45 per 1000 births), including 50 in London.

COUNTY NURSING ASSOCIATIONS.—At a meeting of the Committee of the County Nursing Associations last week those bodies were recommended to apply to the new Public Assistance Committees for the continuance of the grants hitherto given by boards of guardians for the nursing of necessitous cases. An inquiry is being made into the schemes adopted by hospital leagues to provide hospital treatment for their members with the view of adapting them to the district nursing service in the hope of lessening the pressure on the hospitals.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

A MEETING of this Section on Feb. 11th, with DR. GEORGE GRAHAM in the chair, was devoted to a discussion on the

TREATMENT OF URÆMIA.

Prof. F. G. LANGMEAD, in opening, said that, so far as the physician was concerned, uræmia as met with in Bright's disease was a late symptom of an incurable disease, and for that reason did not provide very hopeful material for a talk on treatment. But various views were held on what ought to be understood by the term uræmia; one school allocated to it a small group of symptoms—chiefly cerebral and gastro-intestinal—whereas another school would include any uræmia which could be attributed to toxæmia, even renal retinitis. The treatment could not be approached scientifically without knowledge of its cause, and at present knowledge could not be said to have got beyond the stage of hypothesis. If uræmia was to be regarded as a toxicosis limited to Bright's disease, it must be inquired whence the toxins were derived, whether from katabolic processes or from the kidneys themselves; whether the ductless glands, such as the adrenals, played a part; and whether the presence of toxins preceded the renal disease and explained its production. It was possible that several factors combined to form the picture which received the label uræmia. Here lay a vast field urgently needing exploration, and until it had been explored the treatment must be largely empirical. Really, the proper treatment was to prevent the onset of uræmia, and this meant greater care of the patient in respect of specific infections and the elimination of focal sepsis. The speaker's own usual treatment of uræmia had, he said, no flavour of novelty; it consisted of purgation, diaphoresis, and venesection—the latter being the greatest of the three. There was need for care in purgation and his preference was for jalap, which acted quickly as a cathartic, and was, he thought, preferable to salines. For diaphoresis he had no hesitation in combining hot packs or radiant heat baths with pilocarpine if the patient had no heart trouble or symptoms of respiratory failure. Hot beverages, such as lemonade, enhanced the prospects of profuse sweating, which was of great benefit in these cases. He had seen patients come out of uræmic coma as a result of profuse sweating, but he was aware that the use of both pilocarpine and fluids was open to dispute on theoretical grounds. Another bone of contention was the use of morphia. He gave this drug when there were twitchings and convulsions. In dogs it was found that injection of morphia increased the diuresis if that were already present. On the other side was the possibility of provoking distension of the colon. Some thought lumbar puncture dangerous in the presence of uræmia, but Prof. Langmead had seen benefit from its use, and some physicians preferred it to other methods. The diuretics which seemed permissible were the saline group, though perhaps even those were better avoided. Diuretics containing mercury seemed to be distinctly dangerous. Isotonic salines apparently threw an increased burden on the kidney and hypertonic salines had an added disadvantage. The injection of a 5 per cent. glucose solution might prevent some of the disadvantages; Strauss reported increased diuresis with it, but the speaker did not think Strauss used it in uræmia. He had himself given it to a patient with a large white kidney and considerable œdema, which had been present some months and had failed to react to the usual treatments, and as a result the patient was much brighter, considerable drowsiness having come on a short time previously. He would like to know whether cupping and the use of hot rectal salines had gone out of use; he did not know how they acted, unless it was by reflex dilatation of the splanchnic vessels.

Uræmia was accompanied by deficiency of calcium in the blood, and this had led to the use of parathyroid and calcium lactate. He asked whether those who had used this had had any effect from it other than increase of the blood calcium. Were any tangible effects on record as a result of using alkalis in uræmia? Also had any of his hearers carried out blood-washing—i.e., removing toxins from the blood by dialysis? The method was to remove 500 c.cm. of blood at a time, using heparin to prevent coagulation, dialyse it through a collodion membrane, and then return it to the body, the process being repeated until most of the blood had been so treated. By this means 1·75 g. of urea had been removed, but the result in the classical case had been no more than a week's improvement. The chief use of operation in uræmia, on the medical side, was in acute cases with suppression, in which acute congestion and consequent tension in the capsule interfered with function; incision of the capsule then permitted of a freer renal circulation. The opportunities for this operation were rare, but he had known it done with some success in mercurial nephritis. Thyroid extract had been used to promote diuresis, but as it enhanced metabolism he did not think it should be employed in uræmia.

DR. E. P. POULTON asked why Prof. Langmead gave a 5 per cent. glucose solution as a hypertonic rather than 6 per cent. or 7 per cent. With regard to the use of parathyroid, he said that all last summer he had had under care a man with what would be called large white kidneys. Parathormone was tried in big doses, and the first time it was used it seemed to have some effect in diminishing the œdema and increasing the flow of urine. Then it was stopped. On a second trial in the same patient it was not successful. The calcium was slightly raised as a result, but was still low. What produced the most dramatic effect was the ordinary administration of urea. 15 g. thrice daily raised the blood-urea to 40 or 50 mg. and the urine was increased from 500 c.cm. per day to 1500. He had read that if potassium and calcium were given together they produced diuresis in the isolated kidney.

Low Protein Diet.

For uræmia Dr. Poulton thought a low protein diet should be given, and one of two cases recently under his care illustrated its value.

A woman, aged 54, had suffered from headaches for three years. Her feet and arms were swollen, and two days before the note was made she began to vomit; during the previous three weeks she had not passed the usual volume of urine, though drinking her accustomed amount. Her blood pressure was 165/120 and her blood-urea 90. She had 16 g. of fat and 24 g. of carbohydrate, and two days later the blood pressure was 160/110. She was then put on a strict diet with hardly any protein, being fed on vegetables, potatoes, fruit, butter, and copious drinks of dextrose. The blood pressures on the three following days were 140/90, 140/81, and 142/80. The last blood-urea estimation was 53.

Care had to be taken that the amount of albumin lost was made up by the diet. The other case was not successful, but it bore out certain points. Primarily it was one of *Bacillus coli* pyelitis, and in spite of treatment this grew worse, so that the condition was now probably "surgical kidney." When she entered hospital the blood pressure was 230/135, the blood-urea was 280 mg., and she was vomiting. She was put on a fairly high protein diet for a time, and was then started on a new diet, containing almost no protein. Yet the blood-urea increased daily, the figures being 291, 320, 369 (cerebro-spinal fluid), and 394. She was passing 25 parts of albumin per 1000. The volume of urine was 18 oz. a day, and it contained 1 per cent. urea. He wondered where all this increase came from, seeing that the diet contained practically none. Did it mean that the body proteins were breaking down in the last attack?

DR. W. LANGDON BROWN thought the gastro-intestinal disturbance in these cases showed an attempt was being made on the part of the body to get rid of

some of the nitrogenous waste. The vomited material contained a large amount of ammonium salts. The skin rashes, too, were an alternative method of excretion; these he had seen in cases with very high blood-urea.

Classification and Treatment.

He personally would include under the term uræmia three groups: (1) those cases with convulsions and amaurosis; (2) those with uræmic asthma; and (3) those with all the other cerebral manifestations which were familiar. The first group he thought were due to some general toxic condition, in which the kidney might not share, because they were encountered in such conditions as eclampsia and in the degenerative toxæmic kidney. Though alarming and dramatic, convulsions were amenable to treatment, and often stopped after venesection, patients sometimes recovering thereafter from the nephritis as well as the uræmia. During the war he had eight cases with uræmic convulsions. None of them died, and scarcely any of them left hospital with any albuminuria. Therefore these cases were not necessarily associated with damage to the kidney. It was agreed that uræmic asthma was associated with acidæmia due to the retention of acid potassium phosphate, and here help was derived from the free administration of alkalis. The third group were associated with a rise of blood-urea. The uræmia was certainly not due to the retention of urea; probably the culprit was some amino-acid. The figures given by Dr Poulton suggested that in the last resort there was a breakdown of nitrogenous protein.

As to treatment, he differed from the opener in that he did not like pilocarpine When he used it earlier in his career, respiratory failure and œdema of the lungs seemed to come on more quickly when pilocarpine was used than without it, and there appeared to be a causal connexion between the two. He thought the newer diuretics, containing arsenic and mercury, were scarcely safe in the treatment of uræmia. In these cases the protein should be cut down at an early stage. Sepsis was a very grave incident in precipitating metabolic disaster. His conclusion was that the only cases suitable for diaphoresis were those in which there was a good deal of œdema. More water was secreted following a hot-air bath than with any other method, and after a few days sweating occurred at a lower temperature than at first. In the absence of œdema he did not favour diaphoresis, because it put too much strain on the heart.

Dr. T. IZOD BENNETT expressed doubt about uræmic vomiting being a physiological or compensatory mechanism; he preferred to regard it as a toxic manifestation. The factor mainly responsible for deaths from uræmia was the dehydration following excessive vomiting. Therefore he thought life could be saved in many of these cases by stopping the vomiting—e.g., by means of barbituric acid, or even by morphia. In uræmic asthma when there was marked air-hunger, sodium bicarbonate in large doses might bring about a rapid change for the better. He agreed that venesection was valuable in these cases. In many comatose patients magnesium sulphate would restore consciousness. Much depended on the type of renal lesion. In some acute cases the restoration of consciousness started an improvement which ended in restoration to health.

Dr. OTTO LEYTON agreed that the amount of urea in the blood was not necessarily a measure of the uræmia, so called. Urea had to be in a state of high concentration in the blood before it caused symptoms. Many years ago it was largely the custom to give the lactic acid-forming bacillus, but that was useless unless it was properly prepared. In cases of uræmia with a good deal of œdema he had several times carried out with benefit the method advocated by the late Dr. William Ewart—namely, to sit the patient up so as to encourage the collection of fluid in his legs, and then slice the legs and liberate many pints of fluid, which was found to contain 0·1 per cent. of urea. He had known patients go five months before the fluid collected again.

Dr. A. A. OSMAN said that a series of patients with chronic parenchymatous nephritis of five years' standing, with considerable œdema but little evidence of nitrogen retention, were given large doses of alkalis, and in each case the œdema satisfactorily cleared up in a few weeks. It was thought that the dose of alkali could be diminished, but when an attempt was made the œdema showed signs of returning. During the period of treatment, however, the blood-urea increased. He had found lumbar puncture very useful in uræmic cases, and he had not seen harmful results. He did not favour decapsulation of the kidney, for diuresis could be increased by other means. He thought a high protein diet had a harmful effect by forming much acid; this could sometimes be counteracted by giving alkalis.

The CHAIRMAN thought that venesection was valuable but should be carried out only in the early stage. He had seen late cases in which there was only 30 to 40 per cent. of hæmoglobin, and in them venesection would be very risky. They stood more in need of transfusion, if this was thought worth while. He had seen two patients who, with a high degree of alkali in the blood, were treated surgically for other conditions, and who developed uræmia. Before giving alkalis it was necessary to be certain of the diagnosis, and to have estimates of the alkali reserve and the hydrogen-ion concentration. Vomiting was apt to increase the alkali reserve.

Dr. ARTHUR PHEAR held that pilocarpine was dangerous in these conditions, though it seemed useful in promoting sweating if the patient had a stubborn skin which did not sufficiently respond to the hot-air bath. In doses of gr. 1/10 to 1/20 it made all the difference. Lumbar puncture was valuable in a limited number of cases, including those with acute cerebral symptoms.

Sir WILLIAM WILLCOX stressed the importance of making sure that the case being dealt with was actually uræmic. Advanced morbus cordis, impaired hepatic function, and arterio-sclerosis with changes in the cerebral vessels, might produce symptoms closely simulating those of uræmia. Prognosis was harder in renal cases than in any others. Vapour baths for uræmia were dangerous unless the heart was in good condition; he had seen a patient die from a vapour bath. Hot-air and electric baths he regarded as much safer. Eliminations by the bowel could be greatly helped by colon washing. Caffeine sodium salicylate was valuable in doses of grs. 2 every four hours in promoting the excretion of the kidney. It was a vexed question whether morphine should be given in renal cases and no definite rule could be laid down. If it was given, gr. 1/8 or 1/10 was ample. For the headaches or uræmia large doses of bromide were helpful.

Prof. LANGMEAD briefly replied.

SECTION OF NEUROLOGY.

AT a meeting of this Section held on Feb. 13th, at which Dr. GORDON HOLMES, the President, took the chair, a discussion on the

RELATION OF NERVOUS SYMPTOMS TO NERVOUS LESIONS

was opened by Dr. S. A. KINNIER WILSON. As a beginner in the study of nervous diseases, he said, it had seemed to him practical to separate cases in accordance with their particular semiology. A given disease was represented clinically by a corresponding syndrome, and even if the generic picture was specifically modified it could be relied on for purposes of diagnosis. He had soon realised, however, that the same symptom or symptom-complex could arise in association with lesions at different levels in the nervous system and as a result of different pathogenic actions. He had then, under the influence of teachers of 25 years ago, attempted to rely on the well-tried clinico-anatomical method, to correlate symptoms observed during life with lesions found after death. The method had value, for such correlation was (with

certain provisos) legitimate enough and its employment had led to important discoveries and advances. Now, however, he was convinced that neither a clinical nor a pathological classification offered any particular advantage from the standpoint of nosology and that the sole basis for the scientific arrangement of nervous disease was ætiology. This was precisely the department of research which had lagged behind, and the causation of a large number of nervous affections was undiscovered. Until it was possible to prove that a given causative agent produced invariably and solely the same reaction in the body, distinct from other reactions and amenable to the same treatment, it would be impossible to establish disease entities.

Physiological Nature of Symptoms.

An ætiological factor—a pathogenic agent—could be regarded physiologically as a stimulus, and physiology recognised only three classes of stimuli: pure excitants, pure depressants, and those which first excited and then depressed. Clinical symptoms, therefore, represented either excitation or cessation of function or a series in which cessation followed excitation. All symptoms were functional in the sense of being related to function, and the attempt to distinguish functional from organic symptoms was therefore meaningless. Moreover, a symptom, being the expression of a physiological reaction, could not be specific, for the great diversity of stimuli showed that reactions themselves could not be specific. An Argyll Robertson pupil was just as characteristic of collicular neoplasm as of neurosyphilis, and he had seen every single symptom of hydrophobia manifested in a case of tetanus. Again, a symptom, being the expression of an active process, was in essence fluctuating and variable, whether it was "functional" or "organic." The tremor of paralysis agitans was as patently influenced by psychical stimuli as that of hysteria. Only when a structural change was permanent and tissue react on had come to an end did a given symptom become "fixed." It therefore bore no constant relationship to underlying structural alterations. The conclusion was unavoidable: that symptoms were the expressions of dynamic alterations in function, and might or might not coincide with structural change; and that symptoms due to dynamic or to static change could not be differentiated.

The clinico-anatomical method was beset with pitfalls. In the first place, it was necessary to consider the precise nature of the semiological picture during life; whether the symptoms corresponded to enhanced or diminished function. Stimulation of function could not be associated with destructive lesions; they could only abolish function. "Positive" symptoms, on the other hand, could only be produced by the action of healthy mechanisms. It was illogical to attribute the involuntary flexor spasms of a case of paraplegia to lesions in the pyramidal tract; they could only occur if the lower spinal reflex arcs were sound. Jackson had said that the tabetic walked badly, not with his withered dorsal funiculi, but "with what of his spinal cord is left." The problem of all involuntary movements was physiological and would never be solved by ascribing them to destroyed cell-fibre systems. Secondly, there was no constant relationship between the size of the lesion and the amount of functional disorder. The enormous functional disturbance of a generalised major epileptic seizure bore no relation to any lesion that might be found afterwards, and many gross lesions such as cerebral tumours were unaccompanied by symptoms. Thirdly, the localisation of a symptom, a functional system, and a lesion were different and separate things; they were not comparable, could not be superimposed, and obeyed differing rules of localisation. Fourthly, the clinico-anatomical method took no account of time. The fact that the cells of the substantia nigra might be destroyed in four days in rabies and in three weeks in acute epidemic encephalitis made it very doubtful whether the parkinsonian syndrome could be attributed to their absence. A syndrome the unrolling of which involved the idea of succession in time could not be localised by spatial rules. There was no localisation of the inverted sleep-rhythm in post-encephalitis; its localisation, like that of a tune in a musical-box, was chronogenic. The mutual independence of lesions and symptoms threw light on the true nature of "disease," a term which Dr. Wilson preferred to replace by "reaction."

Even neuropathological changes were not specific; they might be classifiable, but they were nothing more than reactions to noxious agents and the features of any one were common to many others. Prof. Spielmeyer had pointed out recently [1] that the most varied injuries finally led, by a more or less long chain of causes, to the same pathophysiological process.

In conclusion, it was imperative to regard disease processes, whether of activity or depression, as indications of vital efforts to cope with noxæ; many symptoms were signs of health and many lesions were evidence of attempts at repair.

Dr. MACDONALD CRITCHLEY, Dr. P. C. CLOAKE, Dr. L. KUBIE, Dr. J. G. GREENFIELD, Dr. F. PARKES WEBER, and the PRESIDENT complimented Dr. Wilson upon indicating a point of view from which a new insight would undoubtedly be gained into many aspects of neurological disease.

Dr. E. ARNOLD CARMICHAEL then read a paper, composed by himself and Mr. J. PATERSON ROSS, entitled

RADIUM AND NERVOUS TISSUE: AN EXPERIMENTAL STUDY.

The authors had studied the effect on the brain tissue in rabbits of radon seeds buried in the dura mater and laid upon it, and of radium needles laid upon the dura mater. The results of the first series of experiments had been discarded because of the impossibility of distinguishing hæmorrhage due to trauma from that (if any) due to the radium emanations. The second series had been controlled by the application to certain rabbits of empty containers, which had caused no changes. In the brains to which active seeds had been applied there had been slight congestion of the neighbouring tissues in three hours, and the microglial cells had shown some resistance to staining. At the end of six hours the endothelial vessels had shown definite fatty changes, and difficulty had been found in staining the cells immediately below the seed. After nine hours the condition had spread deeper into the brown substance and over the surface of the cortex; there had been an extravasation of polymorphonuclear leucocytes. After 16 hours the lesion had still further extended in area and depth; the vessels were congested and leucocytic extravasation had taken place below the meninges. After 20 hours hæmorrhages were present and there was considerable swelling of the microglial cells round the edge of the lesion, which was wedge-shaped with its base on the cortex. The grey matter in the centre stained very poorly and it was possible to make out the nerve-cells only with difficulty. After 24 hours the hæmorrhage had increased and was visible macroscopically on the cortex; the neurone fibrils in the neighbourhood of the seed were unstainable and one of the myelin sheaths had disintegrated; moreover, at a distance the myelin seemed to have suffered more than any other part of the nervous system.

A series of experiments had then been carried out on the later results of the application of radon seeds of 0·3 and 0·5 mm. platinum filtration. With 0·3 mm. of filtration the size of the lesion had progressed up to 212 hours both in depth and area, hæmorrhage being observed macroscopically. The changes had progressed downwards as far as the vent icle. After 10 days the lesion had changed in character; the hæmorrhage tended to disappear and was replaced by a whitish material with a ring of congested vessels. The necrotic area became detached and the lesion tended to heal. The period of 212 hours appeared to be coincident with the projectivity of emanations from

[1] Mayo Foundation Lecture, December, 1929.

the seed. When 5 mm. of filtration were used—i.e., a smaller dose over a longer period—the lesion was somewhat smaller.

Experiments, of which the results were not completely worked out, had also been made with very small doses of radium in needles containing 5 mc. left in position for long periods. At the end of 20 days the nerve-cells over a very small area had failed to stain and the vessels showed very slight fatty degeneration; the microglial cells were swollen and in an obvious state of phagocytosis. At the end of 35 days the lesion was slightly larger but, instead of total destruction, the asterocytes within the lesion had actually proliferated, a finding which suggested that the treatment of gliomata by radium might be of doubtful value.

Discussion.

Prof. G. E. GASK complimented the authors on the practical value of their work for the future of radium therapy.

Mr. STANFORD CADE remarked that it was premature to conclude, on the basis of these experiments, whether radon was good or bad for cerebral tumours. They showed that radon produced necrosis. An attempt ought to be made to give exactly the same dose as the authors had used without injuring the brain substance. This could be done by surface applications on the same animals under the same conditions. In his experience, normal brain responded very indifferently to irradiation. He did not think that the experiments had proved conclusively that radium could excite a growth. He had concluded that normal brain tissue would tolerate 40 to 50 times the skin-destroying dose and that gliomata were extremely radium-sensitive.

Mr. J. PATERSON ROSS pointed out that the dosage used had been very large indeed in comparison with that used in the treatment of cerebral tumour. The authors had aimed at producing some effect which they could use as a standard. It had produced a local lesion without any general effect upon the animal at all, and they now hoped to use this standard in their work on smaller therapeutic dosage. They hoped later to investigate the effect of radium upon tumour tissue, a problem which lay beyond the scope of animal experiment. They had, however, examined one irradiated tumour and had discovered that a portion of the growth unsuspected at operation had not been irradiated. This was a great argument in favour of Mr. Cade's advocacy of distance or surface application in the treatment of brain growths, which did not allow the accurate application possible in treating tumours of other regions.

The PRESIDENT said that in his experience the results of the radium treatment of gliomata had in some cases been extraordinarily good but in others had stimulated the regrowths of a tumour that had been partially removed. This fact might have a bearing upon the present experiment. It was essential to make an accurate histological investigation into a large series of gliomata which had been cured by radium.

ROYAL STATISTICAL SOCIETY.

AT a meeting of this Society in London on Feb. 18th, with Mr. A. W. FLUX, the President, in the chair, a discussion on

THE VACCINATION PROBLEM

was opened by Prof. MAJOR GREENWOOD, F.R.S. He did not expect, he said, to alter the settled convictions of any one of his audience by statistical reasoning. The vaccination problem would not be settled in practice by logic but by emotion. Nevertheless, he believed that logical discussion was of value, and he hoped that the criticism of his hearers would correct such errors as he had made. Dr. W. A. Guy, in a paper on small-pox and vaccination read in that very place 50 years ago, had rightly said that there could be no answer to the question of whether vaccination were a preventive of small-pox except one couched in the language of figures. Nevertheless, although the practically important issues of the controversy were statistical, a great deal of its literature was not statistical at all, but was concerned with an examination of the life and work of Edward Jenner. J. Baron, Jenner's friend, had lauded him to the skies and described his work as a masterpiece of medical induction. Charles Creighton had condemned him in equally exaggerated terms and had proved, not only that Jenner had never demonstrated that cow-pox was biologically akin to small-pox, but that nobody else had down to the date of his book. Down to the end of the nineteenth century vaccination as a prophylactic had rested on a purely empirical basis. In 1902, however, Dr. S. Monckton Copeman had produced typical vaccinia after passaging variola virus through a monkey and then vaccinating a calf from the monkey. Since then the affinity of variola and vaccinia had been conclusively demonstrated by modern biochemical technique. The putative crudery or roguery of Jenner was therefore now irrelevant, and those who knowingly advanced them to contradict this proved fact were guilty of a more dishonourable act than any which had been brought home to Jenner.

Vaccination as an Individual Prophylactic.

All large collections of statistical data had shown that vaccinated persons were attacked at a lower rate and died at a lower rate than unvaccinated persons exposed to the same risk. Judicious critics had, however, been by no means willing to identify correlation with causation. In dealing with attack-rates it was not easy to say that vaccinated and unvaccinated were in pari materia in all other relevant respects. In dealing with fatality-rates, however, the difficulties were not quite so great, and adverse critics of the figures had had to resort to subtle arguments. Creighton, dealing with Gregory's observation that in the 1825 epidemic the fatality-rate on the vaccinated attacked was 8 per cent. and on the unvaccinated 41 per cent., had remarked that the principle of apportioning a general average by the presence or absence of cow-pox scars could not have been used to break up the 25 per cent. of 1777, the 39 per cent. of 1781, or the 33 per cent. of 1796 into two component parts. Noting that different fatality at different ages had been common at all times, he had remarked that all the deaths in the 8 per cent. division of 1825 had been between the ages of 18 and 27 and that the ages of the 41 per cent. division were written in the books of the hospital. Finally, he had said that, however manifold the cutting up of a general average, some divisions would be identical, corresponding to natural lines of cleavage. Prof. Greenwood suggested that a suspicious critic might suppose that the last sentence was intended to meet the case of data wherein within the same age-group the fatality-rates on vaccinated and unvaccinated were very different.

More modern data undoubtedly showed, prima facie, a great advantage in respect of fatality within age groups; Prof. Greenwood quoted tables based on Gayton's experience of 1870–84 and on the Metropolitan Asylums Board experience in 1901–02. This advantage could not be due to a fortuitous concurrence of age and vaccination groupings; it could only be explained away by supposing that the variable really responsible was social class, and that vaccinated persons belonged in the main to a more prosperous stratum of the community and were therefore more resistant to any acute disease. The only modern investigation with which the speaker was acquainted was that of Dr. W. R. MacDonnell on 842 vaccinated and 29 unvaccinated males admitted to hospital in 1900–01 suffering from small-pox. This author had grouped the occupations thought to correspond to social status and had tested association between social status and vaccination and between social status and fatality by means of the tetrachoric *r*. Having regard to the probable errors of the computed coefficients, it had appeared that there was no sensible association between social status and either vaccination or fatality.

The evidence was sufficient to throw the onus of proof upon those who maintained that there was a practically complete correlation between these factors; that onus had not been discharged. Such special explanations to avoid the prima facie inference that the lower fatality-rate among the vaccinated was due to vaccination were not adduced in other practical matters of equal importance; for instance, everyone believed that candidates who passed an examination were in the main better educated that those who failed, in spite of the many factors other than ignorance which might contribute to failure and the imperfect correlation between grading by examination and the real ranking of knowledge. Prof. Greenwood therefore believed that vaccination had been shown to confer some protection against the risk of death from small-pox, but the question of how much protection it conferred could not be answered, for reasons which he proceeded to give.

Mechanism of "Protection."

The late Mr. G. D. Maynard had suggested that an immunised and an unimmunised group might be likened to two continuous distributions having different means. Members of the population, he thought, possessed the character "power to resist attack" in varying amounts, and the distribution of the population in regard to this character was capable of being approximately represented by a normal curve. Assuming inoculation to increase the "power to resist attack," its effect would be to move the treated portion of the population bodily in the direction of increasing amounts of this power without necessarily altering the type of distributions. Prof. Greenwood and Mr. Yule had put forward, 15 years before, a statistical theory of immunity founded on this suggestion. If epidemics varied in severity through factors affecting inoculated and uninoculated persons alike, it was conceivable that an ordinate, intersecting with the abscissa at a point determined by the "severity," would divide those who survived from those who died, and that the ordinate would cut off on its left a smaller "survivors" area from the non-inoculated curve than from the inoculated curve, since the mean of the latter was to the right of that of the former. Prof. Greenwood developed his theory in algebraical terms. Although on various sets of data it had given a satisfactory description of the facts studied, its validity was not proved, as it did not distinguish between individual immunity and that due to a multitude of other factors. He showed its application to British data of the last 50 years. Its agreement with theory was not very close, as the correlation of the normal deviates of immunised and unimmunised groups, which theoretically should approximate to unity, proved to be only 0·7382. Applied to another set of data, the mean of the computed values did not differ substantially from the mean of the observed values. The question, however, gave only a rough measure of the size of the advantage enjoyed by the vaccinated: the published data of small-pox did not afford that high correlation between the fatality-rates of immunised and unimmunised in different epidemics that was necessary to support a statistical theory of immunity founded on the biological facts. Precision could only be attained by an entente cordiale between experimental and statistical methods.

Vaccination and the Epidemiology of Small-pox.

All the best writers on the orthodox side had developed the contention that the general decrease of small-pox throughout the nineteenth century was in consequence of the spread of vaccination. Dr. W. A. Guy had cited statistical evidence that up to the end of the eighteenth century small-pox in London had been perhaps the most formidable of epidemic killing diseases, but that in the nineteenth century there had been a very great improvement. He had shown, moreover, that the decrease in other epidemic diseases had never been more than a tenth of the decrease in small-pox. The comparison of the fatality-rate in this country with that in Germany, where the vaccination laws were much stricter, had been criticised but appeared to Prof. Greenwood to prove the efficacy of a really drastic system of vaccination and revaccination. Creighton had attempted to explain the decline of small-pox among the young, first by adducing the competition of the great zymotics, especially scarlet fever, and secondly by adducing that the disease was becoming obsolete, a characteristic of all obsolescent diseases being that they ceased to attack the young. Since by the beginning of this century scarlet fever had diminished greatly, Creighton's first factor was not likely to have had much effect; his second statement Prof. Greenwood considered to be true. Nevertheless, there was no reason to disbelieve that vaccination had been one of the factors in the decay of small-pox. Some advocates of vaccination had, however, gone further, and claimed that the small-pox of the nineteenth century among the unvaccinated was epidemiologically identical with that of the eighteenth century. It could be proved that even in the eighteenth century epidemic small-pox might be extremely mild. In the nineteenth century, however, the entry of small-pox into a community where infant vaccination was the exception had not been regularly followed by a disastrous epidemic; this had been proved by the history of the disease in Australia, as related by Dr. J. H. L. Cumpston.

The mild variety of small-pox, generally called alastrim after Ribas, who had reported in 1910 upon a prevalence in Brazil, was now widespread. Its name was of minor importance; the question it presented was a serious one. If we could be certain that it would become universal, vaccination would soon be abandoned, as it was probable that vaccination held out more risk to life than the fashionable small-pox. "Classical" small-pox was not however extinct, even in England, and it had been argued that if vaccination were discontinued and the herd immunity fell below some critical value, the horrors of the eighteenth century would return. Moreover, if the new variety were not fixed and could breed classical small-pox, the danger was presumably intensified. Scarlet fever a century ago, and influenza in recent times, had certainly undergone dramatic vicissitudes. The experience of Sydney, however, and more convincingly still the work of Dr. C. Killick Millard, suggested that the frequent introduction of small-pox into a community which systematically neglected infant vaccination did not lead to a widespread and murderous epidemic.

In conclusion, Prof. Greenwood said that compulsory vaccination and revaccination would have a trivial effect unless enforced more rigorously than they had been hitherto, but that the price of compulsory vaccination on a scale likely to save lives must be paid in lives. He was not satisfied that the resultant saving of life must exceed the price paid, and supported the policy advocated by Dr. Millard.

Discussion.

Sir WILLIAM HAMER, in proposing a vote of thanks, remarked that the paper illustrated the conflict between the laboratory and the field points of view. The bacteriologist and statistician, thinking in terms of individuals, were prone to stress protection against death; the epidemiologist, thinking of the mass, stressed security from attack. Those who were more interested in general statistical principles than in the "stubborn and irreducible facts" might conclude that protection generally was summed up in the statement that "the quantitative study of immunising processes is still in its infancy." Perhaps one of the young people whom Prof. Greenwood taught might even apply the conclusion forthwith to the degree of protection securable for exposed hospital staffs. Sir William hoped that Prof. Greenwood's pupils would first acquire a knowledge of the facts in, for instance, the London outbreak of 1902. In the Mile End Infirmary, out of a staff of 31, the 7 insufficiently protected had all caught small-pox and the 24 vaccinated had escaped. The protection which could be given to staffs was complete. He hoped

for a reasonable compromise between the two views.

Mr. UDNY YULE pointed out that Prof. Greenwood's historical data showed that small-pox had undergone a continuous epidemiological change. It was, therefore, probably not an homogeneous entity. This might be another factor tending to make the data variable and produce the relatively low correlation which was actually found. The different types could not react in the same way to the same vaccine, and the type of vaccine had presumably also varied. Nevertheless, the evidence was overwhelmingly in favour of the protective action of vaccination in those already attacked, however doubtful it might be in support of the property of protection against attack. He asked whether the "classical" type which still appeared to exist had really the infectivity of the old small-pox, and whether the attack-rate and fatality-rate were very highly correlated (Prof. Greenwood signified that they were not). The fear therefore remained that small-pox might still have a horrid surprise in store, comparable to that brought by the influenza pandemic of 1918–19. He leaned more towards compulsory vaccination than did Prof. Greenwood.

Sir ALMROTH WRIGHT complained that statisticians were always demanding larger figures. The result of their demands was the insertion of considerable numbers of cases that should not be inserted, and the fallacy of pseudo-replication grew as that of meagre figures diminished. The kind of fact that impressed him was the report of a friend who had travelled through Egypt and said that there were no children at all between two and fifteen years of age; they had all died of small-pox. He wished it were possible to exclude all the persons who were never exposed to small-pox. The decisive evidence in favour of vaccination was the blood test. Virulence depended a great deal on concomitant organisms. The marking of the skin depended on the growth of streptococci or staphylococci, and most deaths were due to secondary infections; by inoculation against these organisms the disease could be rendered comparatively innocuous. It was also a fact that vaccines varied enormously. Statisticians did not take account of these points.

Dr. W. W. JAMESON declared that the chief administrative difficulty in this country was to determine the exact amount of vaccination necessary; whether to retain the compulsory clauses or rely on the efforts of medical officers of health. The only accurate record was the Infant Vaccination Index, though there might be some relation between those figures and the revaccinations. Forty-four per cent. formed comparatively little protection. Nevertheless, the higher rate in 1902 had permitted a very heavy incidence and death-rate in London. A recent meeting of medical officers of health had expressed the almost unanimous opinion that the compulsory element in vaccination ought to be abolished, but he thought himself that an Act of Parliament had a peculiarly potent effect upon the English psychology. At all events, open discussion of the question was highly desirable.

Dr. S. MONCKTON COPEMAN was inclined to advocate the policy of letting alastrim take its course, and so gain the advantage of protection against any future outbreak of the old-fashioned disease. If the compulsory clauses were retained they were not likely to result in any great increase of vaccination and revaccination; their abolition might produce an increase. He mentioned his early work on the vaccinia virus and small-pox.

Dr. DAVID HERON criticised Prof. Greenwood's table of small-pox in England and Germany, pointing out how they were affected by the outbreaks of 1902 and 1919–21 respectively.

Mr. JOHN HILTON said that in compiling unemployment statistics the all-important requirement was a correct basal observation. The labour exchange clerk must have perfectly lucid instructions and have no opportunity to exercise his private judgment or bias. In recording the data for Prof. Greenwood's paper someone had had to answer three questions in every case: Was the patient vaccinated, had he small-pox, and did he die? The last point was not likely to be a source of error, but the speaker had gathered that "vaccinated" meant efficiently vaccinated, a most complex factor and one giving scope for personal bias in assessment. The diagnosis of small-pox was equally doubtful. The data were scanty; they ought to include every detail connected with a suspect. When mental statistics were one day compiled, a very constant factor would be the intensity and dispersion of emotional bias, which, the controversy being so keen, he suspected of playing a great part in the correlation of Prof. Greenwood's groups.

Mr. L. ISSERLIS criticised Mr. Hilton for assuming that the data of vaccination or otherwise were entered after the patient had died or was discharged. The whole argument was exploded when that point was dismissed.

Mr. H. W. MACROSTY doubted whether the officials who compiled the data were swept by the storms of emotion which Mr. Hilton had alleged. He also gave reasons for doubting the validity of the English and German comparison.

Dr. R. P. GARROW admitted that, while it was easy to determine whether a person had been vaccinated or not, it was sometimes very difficult to decide whether he had small-pox. There was, therefore, an almost regular rule in the profession, when diagnosing small-pox, to take into account the vaccination state. The Minister of Health had admitted in Parliament the existence of this practice among his officers. The data were therefore vitiated for the purpose of this inquiry.

Reply.

Prof. Greenwood, replying, said he did not attach any importance to the tables which had been criticised, as they had been put forward simply to illustrate the orthodox argument. He did not anticipate a storm-burst of small-pox, and felt satisfied that revaccination would increase greatly in the presence of an epidemic, as it had at Leicester. He assured Sir Almroth Wright that statisticians were by no means averse from dealing with small numbers, and preferred homogeneous samples of threes and fours to heterogeneous samples of three hundreds and four hundreds. They preferred quality to quantity, but did not always get it in medical or economic statistics. If the various conditions laid down by Mr. Hilton were absolutely necessary, all the Labour Ministry's statistics were nonsense. Prof. Greenwood was less pessimistic than Mr. Hilton, and believed in the general accuracy of that speaker's results. The idea that vaccination marks were taken into account before diagnosis was a myth. Prof. Greenwood, explaining that he had not alluded to "efficient vaccination," said that in practice he added "doubtfuls" to the vaccinated, and it made very little difference. He regretted that the discussion had not modified his own hesitant attitude to the problem.

GLASGOW HOSPITALS.—Last year the ordinary expenditure of Glasgow Royal Infirmary, at £113,640, was less by £8637 than in 1928, which is partly accounted for by reductions in the price of gas and electricity, and in gauze for dressings, and the abolition of the duty on tea. There were 17,000 in-patients and over 102,000 out-patients, making a total of 6218 more than in 1928. The resources of the hospital are being seriously strained, the number of patients treated since 1924 having increased by over 54,000. The ordinary expenditure exceeded the ordinary revenue by £25,900, but extraordinary receipts enabled the year to close with a small surplus. The ordinary revenue of Glasgow Victoria Infirmary also fell short of the expenditure, the adverse balance exceeding £13,000. The total number of patients increased by 121, and their average cost went up from £8 1*s.* 6*d.* to £8 5*s.* 7*d.* Serious motor accidents accounted for 217 patients; there were 119 lesser casualties of the same kind. The total cost of treating them was about £2000. The extraordinary income was £13,619.

Reviews and Notices of Books.

MOBILIZATION OF ANKYLOSED JOINTS BY ARTHROPLASTY.

By W. RUSSELL MACAUSLAND, M.D., Surgeon-in-Chief, Orthopædic Department, Carney Hospital; and ANDREW R. MACAUSLAND, M.D., Orthopædic Surgeon, Carney Hospital, Boston, Massachusetts. Philadelphia: Lea and Febiger. 1929. With 154 engravings. Pp. 252. 84.

Dr. Russell MacAusland, on whose shoulders the orthopædic mantle of Murphy seems to have fallen, shares with Dr. Willis Campbell probably the honour of being the best-known American exponent of the art of making new joints. Formerly the joints of the upper extremity when stiffened by disease attracted surgical efforts for their cure. This was because the disability resulting from a stiff elbow, wrist, or shoulder is far greater than that from a stiff knee or hip, supposing that any of the last-named joints are ankylosed in a favourable position. The knee, which depends so much for its stability upon the restraint of ligaments, long seemed an unfavourable field for arthroplasty, till Putti, of Bologna, improved upon the pioneer work of Murphy. The success of his attempts reminded us of the fact, which had nearly been lost sight of, that muscles play an even greater part in the control and support of joints than do ligaments, and that their action is capable of taking the place to a very great extent even of such a complicated arrangement as the ligaments and cartilages of the knee-joint. The differences of function of the upper limb from the lower affect the prospects of attempts to restore movement in a case of ankylosis, for a weight-bearing joint like the knee requires a much greater degree of stability than one like the shoulder, of which the weight-bearing function is quite subsidiary.

This book is divided into four parts. The first is on ankylosis, its causes and treatment, including a useful discussion of what the authors call the *functional* position of various joints, by which is meant that position which allows of the most extensive performance of the functions of the limb, despite the stiff joint. The second part is on arthroplasty in general. The writers here maintain that an arthroplasty is not an excision, but something quite different. The point is not very important; we ourselves hold that an arthoplasty is an excision, but one specially modified for the special purposes of procuring movement with stability. The historical portion of this part is of much interest and value. The authors give full credit to other operators, and the work of previous and contemporary surgeons receives due notice. Under the heading indications and contra-indications much valuable advice, the fruit of a wide experience, is offered to the reader. Part III. deals with the arthroplasty of specific joints; here eight joints are discussed, but the authors lay it down elsewhere as a categorical rule that there are practically only five joints in which mobilisation is justified—namely, the temporomaxillary, the elbow, the knee, the hip, and the first metatarsophalangeal joint. As regards this last, we believe that those surgeons are right who hold that a free excision of the head of the metatarsal bone gives the best obtainable result, and we would thus reduce the number of joints suitable for arthroplasty to four. The authors hold that "in only very rare instances are the shoulder and the wrist subjects for mobilisation, and under no circumstances is arthroplasty to be considered in the ankle-joint." Part IV. is devoted to a consideration of the prevention or minimisation of ankylosis. Operators in general, including the authors, Putti, Willis Campbell, and others, nowadays use free flaps of fascia in arthroplasty. The old theory of Murphy that the flap needed an isthmus connected with its site of origin for its nutriment has been proved to be fallacious. There is still room for some doubt as to what becomes of fascial flaps in successful arthropathies. The balance of evidence inclines to the theory, supported by the authors, that the fascia is transformed into a connective tissue which acts as a covering for one of the articular surfaces.

This valuable monograph is well illustrated, and the various operative procedures are fully described.

HEREDITY AND PARENTHOOD.

By S. C. SCHMUCKER, Ph.D., Sc.D. London: Macmillan and Co., Ltd. 1929. Pp. 322. With 42 figures. 10*s.* 6*d.*

THERE are perhaps quite enough books nowadays on heredity, sex, and sex relationships. But there is still room, we think, for one written in the admirable temper of Prof. Schmucker. He gives, professedly for those with little or no biological knowledge, a straightforward, easy account of inheritance and sex. It does not everywhere reach a very high standard of accuracy in detail; the bursting of a boil, for example, is not achieved by just the mechanism which he describes on p. 144. But he tells his tale with singular clearness, and the whole is imbued with a dignity, restraint, and simple human kindliness which is particularly welcome in these times.

ÉTUDES NEUROLOGIQUES.

Troisième série. By GEORGES GUILLAIN, Professor of Diseases of the Nervous System in the Faculty of Medicine of Paris; Physician to the Salpêtrière. Paris: Masson et Cie. 1929. Pp. 453. Fr.70.

WE have had occasion to review from time to time the volumes of neurological contributions made by the present holder of the Charcot chair in the Paris faculty, who is a worthy successor to Raymond, Dejerine, and Pierre Marie. Prof. Guillain again places the neurologist in his debt by a further series, embracing papers of outstanding interest, most of which have appeared during the last few years. Three are devoted to infection with cysticercus, a condition seldom seen in this country but well known from the work of mid-European investigators. A somewhat provocative and controversial paper deals with the apparent occurrence of Jacksonian epilepsy in association with lesions of extracortical site. While this does not constitute a clinical novelty, it must require careful and critical consideration. Absence of macroscopical change at operation cannot of itself invalidate the usual conceptions of Rolandic localisation, and the instances here brought forward by Prof. Guillain seem to have belonged mainly to a vascular class. In none of them do we think it absolutely proved that the motor cortex was not physiologically influenced in direct fashion by lesions in its vicinity. A readable contribution discusses the comparatively rare syndrome of Foville, which Prof. Guillain shows may occur simultaneously on the two sides. Polyneuritis cranialis is another topic of interest, a descriptive account being furnished of the syndromes associated with lesions at various foramina of the skull and in other spots where cranial nerves are in apposition. The clinico-anatomical method, traditional in the French school, is here seen at its best; while the charming style of the writer and the lucidity of his language enable us almost to imagine we are sitting in his clinic, and must surely attract all students and practitioners of neurology.

VACCINE THERAPY.

Immunisation locale contre la tuberculose par voie cutanée. By J. DEKKER. Amsterdam: H. J. Paris. Pp. 108 and plates. 7*s.* 6*d.*

THIS book, which has a foreword by Prof. Besredka, consists almost entirely of a record of cases treated by the author's special method of vaccination. The vaccine is administered by placing 6 drops of vaccine on to two skin scarifications of 8 cm. length, after a preliminary test scarification of 1 cm. length. Vaccine A consists of a mixture of tuberculin and an emulsion of dead tubercle bacilli. Vaccine B has in addition staphylococcus, streptococcus, pneumococcus

and the influenza bacillus. One hundred cases are recorded. The history of the patient, together with the symptoms, is given in all cases, but the physical signs are only briefly enumerated, and very few laboratory tests, such as the finding of tubercle bacilli in sputum or other excretions, appear to have been used to clinch the diagnosis. Radiograms were taken in a considerable number of cases; a small collection of radiograms of pulmonary cases before and after treatment is given, also photographs of one lupus case before and after treatment. The work does not appear to be very well documented, and it is difficult to arrive at a satisfactory assessment of the value of the method of treatment from a mere perusal of the book. The author is himself evidently fully convinced.

LIPPINCOTT'S POCKET FORMULARY.

Second edition. By GEORGE E. REHBERGER, M.D. London: J. B. Lippincott Company. 15*s*.

THIS book, of suitable size for a capacious pocket, though hardly what one would like to carry constantly, is a satisfactory sample of the literature on which the practitioner should consult when faced with the treatment of some disease with which he is not familiar, or of one on which he has exhausted his usual remedies. In the first half diseases are given in alphabetical order with a plentiful list of prescriptions and suggestions. The author himself seems to be in doubt whether they are not too numerous, but the essential thing in such a compilation is completeness. The second half of the book is divided into three parts, containing respectively the drugs given in the U.S.P. (tenth edition), National Formulary, and the New and Non-Official Remedies. It is a useful book brought well up to date in this edition.

Reports and Analytical Records.

THE GERMICIDAL ACTION OF DIMOL INTESTINAL ANTISEPTIC.

(MANUFACTURED BY THE DIMOL LABORATORIES, LTD., 40, LUDGATE-HILL, LONDON, E.C.4. DISTRIBUTED BY MESSRS. SANGERS, LTD., 258, EUSTON-ROAD, N.W.1.)

WE have been asked by Captain Ainslie-Walker, of the Dimol laboratories, the originator of Dimol Intestinal Antiseptic, to examine the germicidal action of the antiseptic in any manner which might suggest itself to us and to report our findings to the medical profession. An independent bacteriologist was asked to carry out these tests, and he has reported as follows:—

It is manifestly useless to endeavour to conduct experiments in such a manner that *in vivo* conditions are simulated. It was thought, therefore, more satisfactory to deal with *in vitro* tests.

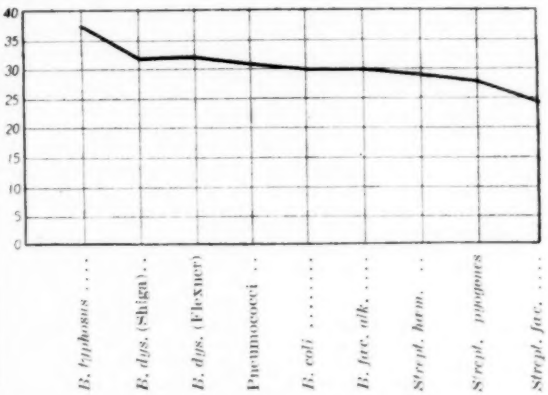
Dimol antiseptic is a granular powder of brown colour having a heavy, phenolic odour. It is sparingly soluble in cold water, but if treated correctly yields a very fine emulsion. This is highly satisfactory since it is well recognised that, from the germicidal point of view, a good emulsion acts more efficiently than a true solution. The makers recommend that the powder be rubbed up with a little cold water into a smooth paste and then diluted with water at 70° C., the emulsion being kept in a water-bath at this latter temperature for a few minutes.

Prepared in a proper manner it was found possible to obtain an emulsion which actually gave a higher Rideal-Walker coefficient, using *B. typhosus* as the test organism and carbolic acid as a standard, than is claimed by the inventor of the preparation; with such a good emulsion a figure of 37 was obtained compared with the factor 35 claimed. The method of preparation of the emulsion affected very considerably the result obtained in Rideal-Walker tests, and it is important that the directions of the manufacturers should be followed closely. Good emulsions then remain perfect for more than two weeks.

1. *Determination of the Rideal-Walker coefficient of Dimol using organisms isolated from the fæces.*—For these experiments typical strains of the organisms tested were isolated from fæces examined in the laboratories of a large general hospital. The Rideal-Walker technique was followed closely; any variations lay chiefly in the direction of media suited to the growth of the organisms under test; 0·5 c.cm. of the test culture was used as inoculum in the medication tubes. The values so obtained were as follows:—

Test organism.	Rideal-Walker coefficient.
B. typhosus	37
B. dysenteriæ (Shiga)	34
B. dysenteriæ (Flexner)	34
Streptococcus fæcalis	24
,, *pyogenes*	27
,, *hæmolyticus*	28
Pneumococci	32
B. fæcalis alkaligenes	30
B. coli	30

When viewed in the form of a graph the coefficient show a remarkably level line, only dipping slightly in the case of *Streptococcus fæcalis*, an organism most probably of little clinical importance.



2. *Determination of the degree of dilution of the antiseptic leading to death of the organisms in 15 minutes.*—These tests gave the following figures:—

B. typhosus	1:6500
B. dysenteriæ (Shiga)	1:6250
B. dysenteriæ (Flexner)	1:6000
Streptococcus fæcalis	1:5500
,, *pyogenes*	1:6000
,, *hæmolyticus*	1:6000
Pneumococci	1:7000
B. fæcalis alkaligenes	1:6000
B. coli	1:5000

These figures are interesting as showing that, with a longer time factor, all the organisms closely resemble one another. All the tests were carried out at body temperature, 37° C.

3. *Examinations for toxicity.*—Some difficulty was met with in feeding experiments with animals. Single doses up to 0·02 g. (equivalent to 1/3 gr.) per kilogramme body-weight were given to rabbits without producing toxic effects. Such a dose corresponds to grs. 20 for a man weighing 10 stone, five times the dose advocated for therapy. No evidence of absorption as shown by carboluria was obtained. Repeated doses equivalent to two and a half times those recommended in therapy also failed to produce ill-effects when given three times daily over a period of four weeks.

Conclusions.—(1) Dimol intestinal antiseptic is found to possess a very high Rideal-Walker coefficient against the commoner organisms infecting the intestine. (2) The antiseptic kills completely these organisms in 15 minutes in dilutions ranging to 1 in 7000. (3) The preparation shows no evidence of producing toxic effects in animals even when given in very large doses. No carboluria was produced.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 22, 1930.

SURGICAL ACCESS TO THE CHEST.

UNTIL fairly recently the chest was regarded as out of bounds to the surgeon because it was thought that, apart from such operations as those required for acute and chronic empyema, any surgical interference would almost certainly result in rapidly fatal spontaneous pneumothorax. Nowadays, the thoracic surgeon is widening his field of activity, and operations which were undreamt of at the beginning of the century—such as the removal of tumours of the lungs, pleura, and mediastinum, and the draining of deep-seated pulmonary abscesses—are becoming commonplace. Lobectomy and even pneumectomy have been attempted, although the immediate operative mortality has not been reassuring.

The very real advance in thoracic surgery can be estimated by studying and contrasting the surgical text-books of the early part of the present century with those of the present day. The progress made is indeed striking. The reasons underlying this rapid increase in knowledge and interest in pulmonary disease are many. Among the most important is the development of radiology with its concomitant use of lipiodol for the purposes of diagnosis. Improved bacteriological and chemical methods have contributed largely to better diagnosis. The general adoption of artificial pneumothorax in the treatment of pulmonary tuberculosis and allied conditions has not only been of great value from the therapeutic standpoint, but has also been of assistance to the radiologist in his diagnosis of such conditions as new growths of the lung, and benign tumours of the mediastinum. The surgeon has been able to attack more easily such conditions as growths of the thoracic portion of the œsophagus and mediastinal tumours, when the lung has been previously collapsed artificially. Much has been learnt also of the mechanics of respiration and gaseous exchanges. Amongst other things it has been shown that a patient can have a considerable degree of collapse of both lungs with no appreciable embarrassment of the respiratory or cardiac functions. All these factors have led to an increased clinical interest—as, for example, in the correlation of physical signs with radiological appearances—and also to an added interest in the study of physical signs for their own sake. But it was the late war which afforded the greatest stimulus to the study of chest surgery, for it yielded a concentrated mass of clinical cases with wounds of the chest of every description, and brought forth a new conception of the physics of the lungs and pleural cavities. Such conditions as massive collapse of the lung following injury, and surgical infections of the lungs and pleura were studied in great detail. It was seen quite early in the war that a soldier with an open pneumothorax did not necessarily die immediately, and that, on the contrary, many such cases recovered completely. The modern view arising out of war experience of the mechanics of open pneumothorax is that if an opening in the pleura is of smaller extent than the aperture of the glottis, the lung collapses gradually, and the intrapleural pressure remains negative. This type of pneumothorax does not cause respiratory embarrassment. If, however, the communication through the pleura with the outside air is larger than the aperture of the glottis, the lung collapses suddenly, and the mediastinal contents are displaced to the opposite side by the negative pressure set up by inspiration. On expiration, when the pressure becomes positive, the mediastinum returns to its original position, and in this way a to-and-fro flapping movement is produced, leading to disturbance of cardiac and respiratory function and characterised by cyanosis, dyspnœa, and irregular action of the heart. Before the war efforts had been made to prevent the possibility of fatal pneumothorax in operations on the chest, notably by SAUERBRUCH with his negative pressure operating chamber (hypo-atmospheric method) and by MELTZER, who introduced the intratracheal insufflation method by which the anæsthetic, mixed with air or oxygen, is pumped above atmospheric pressure through a catheter in the trachea into the lungs (hyper-atmospheric method). In this country only the latter method, or modifications of it, are now used.

During the past ten days in London a great deal of discussion[1] on respiratory diseases has been taking place. At the Royal College of Surgeons, the President of the Royal College of Physicians delivered a Hunterian Lecture on Massive Collapse of the Lung. The Section of Surgery of the Royal Society of Medicine discussed the question of Intrathoracic Tumours, while the Section of Anæsthetics, in conjunction with surgeons, held a discussion on Anæsthesia in Thoracic Surgery. The Medical Society of London dealt with the surgical methods of collapse of the lung, accessory or alternative to artificial pneumothorax, and Dr. GUSTAV MAURER, of Davos, read a paper on the Surgical Treatment of Pulmonary Tuberculosis, in which he referred mainly to the nature of adhesions in artificial pneumothorax and his "two puncture" method of dividing them. The value of cutting adhesions in artificial pneumothorax in order to obtain complete collapse of the lung is a matter on which opinions are divided. Frequent endogenous infection of the pleural cavity leading to empyema and tuberculous exudate brought the method, first instituted by JACOBÆUS, into some degree of disrepute. It is doubtful whether adhesions in the majority of pneumothorax cavities prevent a good functional result. The basic idea under[illegible] collapse therapy is not, as might be supposed, to [illegible] the lung completely, but in order, as STUART TIL[illegible] has pointed out, to release the edges of the ulcerate area from the tension of the surrounding lung tissue, and thus to promote healing. It has been shown by UDAONDE and VADONE[2] that a completely collapsed lung is never at rest. In some cases the presence of adhesions prevents a good functional result. The figure of 37 per cent. given by GRAVESEN and the MATSONS is, of course, purely arbitrary, as it depends on the type of case selected for the treatment. MAURER, in his classification of adhesions found in these cases, shows that, in the majority, devitalised lung tissue is caught up in the adhesion, which if divided through the tissue of the lung allows endogenous organisms to infect the pleural cavity. From this fact he makes the interesting point that in order to prevent endogenous infection, the adhesion must be divided as close to the parietal pleura as possible. MAURER'S method should give the best results in

[1] See THE LANCET, Feb. 15th, pp. 331, 346, 349, 352, and 355.
[2] Compression of Lung in the Treatment of Pulmonary Lesions (London, 1927).
[3] Arch. méd.-chir. de l'appar. resp., 1928, iii., 363. See also THE LANCET, 1929, i., 621.

those cases in which adhesions prevent the collapse of pulmonary cavities, but unfortunately in many of those cases a type of adhesion exists which finds no place in his classification—viz., those in which the lung is firmly adherent over a wide area to the parietal pleura with no demarcation between the pleura and the lung tissue. It is these cases in which an attempt to divide the adhesion would be most dangerous. The difficulties which adhesions set up in artificial pneumothorax seem to suggest that the best time to institute the treatment is at the earliest possible moment, without trying more conservative methods of treatment and allowing adhesions to form. It is true, however, that often by the time that the patient consults his doctor adhesion between the pleural layers has already taken place.

It is a curious fact that artificial pneumothorax, a minor surgical operation, is considered in this country and elsewhere to come within the province of the physician. But it is really an indication of the fact that for the successful diagnosis and treatment of pulmonary disease, a team of skilled workers, consisting of physician, surgeon, radiologist, laryngologist, anæsthetist, and bacteriologist is necessary. On the Continent there has appeared the chest specialist who is a physician-surgeon-radiologist, and in isolated instances in this country the same combination is to be observed. The success of a team depends on the individual members of it, and under Utopian conditions, no doubt, would be of greater efficiency than the man who might be somewhat irreverently termed the Pooh Bah chest specialist. But there seems to be no reason why the man who has specialised thoroughly in chest diseases should not be able to combine both medicine and surgery and perhaps radiology of the respiratory system.

SLUM CLEARANCE AND THE RATING SYSTEM.

On Wednesday in last week a resolution was moved in the House of Commons which asked the House to regret the excessive burdens placed on the occupiers of new houses by the present rating system, as well as by street-paving charges, while the detrimental effect of these burdens upon future housing activities was clearly pointed out by the participants in the debate. The object of the resolution was to urge the Government to consider proposals for some scheme of adjustment or modification of rates, when the question of housing came up for future legislation, an event that is due to occur promptly. For in the King's Speech at the opening of Parliament the promise was made that an extensive programme of slum clearance would be promoted, and, of course, the clearance of the slums means the construction of accommodation for the dislodged inhabitants.

It is an unfortunate fact that until now the rents, with the accompanying rates, demanded for any new houses, are usually—it might almost be said invariably—in excess both of what any previous slum-dweller has paid or what he can pay. This is not to say that there is any systematic extortion about the rent charges, for their scale can be shown to depend mainly on the cost of land and building. But the rates and other charges are dictated by the rent, and the total cost to the tenant is such that those who should benefit by slum clearance are unable to do so. The resolution before the House was moved by Mr. Philip Oliver, who suggested a way out of this dilemma through a system of differential rating, with a communal charge for any cost of street-making which could not be regarded as due to the requirements of the residents of that street. Mr. E. D. Simon, in seconding the resolution, appealed to the Minister of Health to deal bravely, in connexion with the forthcoming Housing Bill, with the present system of rating, which he described as faulty and antiquated. But an intervention from Sir Kingsley Wood here raised the important point that to deal with the question of rating in a Housing Bill, according to the lines proposed by the supporters of the resolution, would unduly burden a large number of working men and women who were already making a fair contribution as taxpayers to the State support of housing development. To some extent the Minister of Health was in agreement here, for he pointed out that the gist of the resolution was to obtain a further subsidy from the State, whether by means of derating or by reducing the road-making charges or both, while at the present moment the State was already contributing something like one-third of the cost of the publicly assisted houses now under construction. Mr. Greenwood did not defend the system of rating—indeed, he condemned it in general terms, but he said that he could not see the justice of derating the persons who happened to be fortunate enough to live in new houses at the expense of those who lived in the old houses. It is clear that the problem of rating will not be dealt with in connexion with the new housing scheme.

The probability is that the movers and supporters of the resolution, which was agreed to by the House, did not anticipate that the many social problems which will naturally come up for discussion under the Housing Bill would be added to by including rating questions in the measure. But it is to be hoped that Mr. Greenwood, as an important member of the Government, will see that the representations on the subject will not be forgotten, and will make their appeal in some more appropriate manner. The housing shortage is being met; the absolute dearth is being replenished, more satisfactorily in some areas than in others, and we may expect that the results will be expressed to some extent in vital statistics. This should encourage the Government to think comprehensively in their contemplated measure, recognising that the housing difficulty continues to be an effective obstacle to the promotion of public health.

THE TREATMENT OF URÆMIA.

Of the more immediate causes of death which occupy the attention of the practitioner, uræmia is one of the most frequent and striking, and the informal discussion on its treatment which took place at the Royal Society of Medicine last week is of importance to all branches of medical practice. A full report of this discussion, in which several sections of the Society took part, appears in other columns of our present issue. The term uræmia is admittedly inexact and covers a very large number of phenomena, but there is general agreement that serious failure of renal function is an essential part of any syndrome which may properly be included in this term. The main groups of symptoms to which this name is applied are familiar enough, whether it be the group with convulsions and amaurosis, with renal asthma or marked respiratory manifestations, or with prominent cerebral and gastro-intestinal symptoms. Intensive study should, in course of time, tend to increase our knowledge sufficiently to enable us to define with some exactitude the changes in the chemistry of the body fluids which underlie these

varying syndromes. Possibly this increased knowledge may enable the expert of the future to separate the group of definitely irrecoverable cases from others in which it is possible with some certainty to institute effective therapy. Although, as Prof. F. G. LANGMEAD pointed out in opening the discussion, uræmia is only too often a late symptom of an incurable disease, it does sometimes manifest itself to us as an acute disturbance threatening life in a patient in whom the renal damage is not, in itself, incurable. Cases of acute nephritis in children are sometimes attended with uræmia, the treatment of which has been followed by a large and sometimes permanent measure of repair to the nephritis and consequent restoration to perfect health. Urologists, again, are acquainted with the alarming manifestations of acute renal failure which sometimes follow stages in the operative treatment of prostatic obstruction, and they have seen such patients enjoy good health for years afterwards if the menace of the immediate attack can be held off. It would, therefore, seem that in uræmia it is important for the practitioner to form a sound estimate of the amount of permanent damage present in the kidneys of a patient he is treating; if he is able to satisfy himself that this damage is not irreparable it becomes of urgent importance for him to adopt the proper measures for counteracting the acute crisis which is superimposed.

A cloud of uncertainty still hides from us the exact interpretation of uræmic symptoms, although it may be stated with little risk of contradiction that twitchings and convulsions are evidences of disturbed calcium metabolism, that uræmic asthma and air-hunger are usually an indication of a lowering of the alkali reserve of the blood, and that uræmic coma is, at least in many instances, an expression of increased intracerebral tension. In the discussion already mentioned, Dr. IZOD BENNETT expressed the opinion that vomiting, which is often so prominent a feature in surgical cases, is not infrequently the cause of death owing to the progressive dehydration of the patient. He had, he said, seen life saved on many occasions by the energetic exhibition of drugs, such as the barbituric acid compounds, or even morphia, which would prevent vomiting of this type. Dr. E. P. POULTON, Dr. LANGDON BROWN, and several other speakers emphasised the importance of diet in uræmia, whether threatened or actually present. While it is true that nitrogen retention may be present for years without the production of uræmia, and equally true that the most rigorous diet, with reduction of proteins to a bare minimum, is powerless to prevent nitrogen retention once this has occurred, there was general agreement that anything approaching a moderate protein diet, let alone a high one, might rapidly be followed by disaster. A possible alternative explanation of this was advanced by Dr. A. OSMAN, who instanced the acid-producing tendency of protein diets, a subject on which we must look to the future to supply exact knowledge; it is, however, already clear that a diet which tends to keep the reaction of the blood close to its physiological normal level without effort on the part of the kidney is clearly desirable in all cases where its function is impaired. Many speakers of experience who contributed to the discussion emphasised the need to promote excretion by purgation, by sweating, and possibly by venesection, but they were careful to qualify their statements by an admission of the frequent inefficacy of such measures when applied alone. Coöperation with the biochemist will long be required before the physician can regard the therapy of uræmia with satisfaction.

Annotations.

"Ne quid nimis."

ANOTHER SCOTTISH MILK EXPERIMENT.

THE usefulness of adding milk to the diet of elementary school-children was demonstrated two years ago by an experiment in Scotland.[1] This experiment was instructive and convincing, but it was confined almost entirely to town schools and its basis was somewhat narrow. After much consideration, the Secretary of State for Scotland has therefore decided in favour of a further investigation, and this was inaugurated at Hamilton last Saturday by Mr. Tom Johnston, Parliamentary Under Secretary of State. It will involve 20,000 school-children from 100 schools in the County of Lanark. From Feb. 17th until the schools close in July, some 10,000 to 12,000 children will receive an additional forenoon ration of three-quarters of a pint of milk. Five thousand of these children will receive Grade A ("tuberculin-tested") milk; another 5000 will receive pasteurised milk, while 10,000 "controls" will be weighed and measured but will get no added ration. Over 9000 gallons of milk will be supplied daily through the Milk Pool (Scottish Milk Agency, Ltd.) and the cost of the experiment is expected to be about £9000. Of this sum the Empire Marketing Board are to contribute £5000 and the Central Advisory Committee of the Miners' Distress Fund £2000. The investigation will serve several purposes. It will constitute a more searching test of the value of milk as a food for growing children. It will increase the consumption of milk in Scotland, which is in this respect behind many other countries. It will considerably help the milk-producing trade, and it will also do something to inform the general public of the value of standardised milk. Incidentally, it will afford relief in the depressed mining areas. The previous experiments, conducted over two years, showed some of the possible mistakes in research on a large scale, and those in charge of the present investigation will benefit by the experience which has been gained.

THE HICKMAN MEMORIAL.

AN appeal which was launched about a year ago to recognise and perpetuate the memory of Henry Hill Hickman, a pioneer in general anæsthesia by inhalation, has been repeatedly endorsed in our own columns.[2] Thanks to a generous response from individuals and societies the Committee, of which Dr. W. J. McCardie and Dr. Cecil Hughes are hon. secretaries, has been able to make the following arrangements. A memorial tablet, designed and executed by Mr. Eric Gill, will be unveiled in Bromfield Parish Church, near Ludlow, on April 5th next, being the centenary anniversary of Hickman's burial. His grave in the churchyard will be restored and the tombstone re-lettered. A memorial medal with an endowment fund will be awarded for original work in connexion with anæsthesia. In addition, it is hoped to arrange for a portrait of Hickman to be presented to the Royal Society of Medicine. Finally, Mr. Henry Wellcome has made a valuable collection of memorabilia connected with Hickman, which will be demonstrated at a meeting which has been provisionally fixed for April 2nd, the anniversary of Hickman's death. We understand from Dr. Hughes that the names of subscribers to the fund and the total amount subscribed will shortly be published and the appeal closed. Before doing so the Committee invite any who may have overlooked the matter, and who appreciate what is due to the discovery of general anæsthesia and wish to encourage its development, to send a donation to the hon. treasurer, Mr. V. Warren Low, 76 Harley-street, London, W.1, before March 1st.

[1] THE LANCET, 1928, i., 202; 1929, i., 40.
[2] THE LANCET, 1928, ii., 1195; and 1929, i., 787.

MATERNAL MORTALITY IN AUSTRALIA.

THE number of maternal deaths which occur in connexion with every thousand live births in Australia shows a steady rise since 1922, having remained more or less stationary during the previous ten years. The maternal death-rate in 1928 was 5·98, the highest yet recorded, and the Commonwealth of Australia invited Dame Janet Campbell, senior medical officer for maternity and child welfare at the Ministry of Health, to visit each of the States and to advise what measures should be tried to cope with the distressing situation. Dame Janet has now returned and her report, of which the substance was communicated verbally on Tuesday to a group of interested people, has been issued as a white paper.[1] In it she deals comprehensively with the local problem, reviewing existing facilities for maternal and child welfare and making pertinent suggestions for future action. The steady reduction of the infantile mortality of Australia from 96 per 1000 births at the beginning of this century to 52 in 1928 is an achievement to which she accords due praise. The neonatal death-rate (deaths under one month) is, however, less encouraging, and a table of death-rates of infants under one week shows that this rate is actually higher now in Australia as a whole and in all the States except Western Australia than it was 20 years ago. The significance of these deaths within a few days of birth is their association with obstetric and developmental, rather than with pædiatric causes, and it is through care of the parturient mother that improvement in the infantile mortality will be obtained. Though certain hospitals in Australia (for example, the Queen Victoria Memorial Hospital in Melbourne) have a well-organised prenatal department, prenatal work has scarcely developed at all in connexion with the fairly numerous infant welfare centres. Dame Janet Campbell's suggestions for further action include the provision of improved professional education in midwifery and antenatal and infant hygiene, since much advance will have to be made before all doctors practising in Australia are willing and competent to undertake the regular supervision of pregnant women. The expansion of the place occupied by midwifery in the medical curriculum offers more hope than the organisation of post-graduate instruction in such a large continent, where isolated practitioners may find it difficult to take advantage of any facilities provided in the great towns. As to the midwives, though the regulations for their training are similar in the different States, the practice varies considerably and the laxity of administration in certain schools requires attention.

Dame Janet condemns small training schools, where the lecture or coaching is merely an incident in the work of a busy practitioner or matron and gives cogent reasons why maternity hospitals for private patients only should not be recognised as training schools. It would be better in the long run, she holds, to train a smaller number of midwives than to allow certification after instruction which falls far below the accepted minimum requirements. In connexion with training in mothercraft, emphasis is laid on the desirability which would hardly be questioned in this country of leaving to the discretion of those responsible in each recognised institution for mothercraft the question of modifying or varying the details of instruction. "Diversity of medical opinion and practice in regard to infant feeding in Australia and elsewhere indicates that there can be no sterotyped or standard method applicable to every infant under all circumstances and suggests that the ordinary baby is tolerant of, and can even thrive upon, comparatively widely different dietaries." The administrative changes advised concern mainly the need for revision on uniform lines of the returns required on death certificates, the desirability of registration of still-births, of compulsory notification of births to the authorities concerned with infant welfare (not yet in force in all parts of Australia), and of puerperal fever.

The establishment of a maternity service whereby any woman can obtain facilities for the satisfactory conduct of a normal or a difficult confinement and the development of infant and child welfare services "under medical supervision" are also recommended. In the absence of a completely organised public health service under local authorities, Dame Janet advises: (*a*) the establishment in each State of a Division of maternity and child welfare, in charge of a whole-time medical director responsible to the chief medical officer of health; this Division might design a general and comprehensive scheme of action which should not necessarily be applicable at once in its entirety. Propaganda publicity should be encouraged and the coöperation of women's organisations enlisted. The other major recommendations made are: (*b*) the granting of subsidies, properly conditioned and adequately supervised, towards the extension and improvement of the work for maternal, infant, and child hygiene; and (*c*) the encouragement and subsidising of research into various aspects of such activities.

[1] 1929. Commonwealth of Australia Department of Health. 32 foolscap pages. Canberra: H. J. Green, Government printer.

TETRACHLORETHYLENE AND HOOKWORMS.

IT is at last becoming possible to form a fairly sound opinion of the value for a hookworm campaign of tetrachlorethylene, the anthelmintic introduced by Maurice C. Hall and J. E. Shillinger [1] about five years ago. P. D. Lamson and his colleagues [2] have studied its anatomical and physiological effects on animals. The hepatic necrosis, so pronounced after administration of carbon tetrachloride (CCl_4), is quite absent in dogs after tetrachlorethylene (C_2Cl_4). This is so even when the stomach has been filled up by the drug, when it has been given in doses of 2 c.cm. per kg. every second or third day for several months, or when the dog has been kept anæsthetised by its inhalation for several hours. Fatty change had previously been noted in the liver, but Lamson's report suggests that it is no greater in these drugged dogs than in ordinary animals. The kidneys were unaltered in structure, nor could changes be detected in hepatic function. The experiments show further that normally the drug does not pass the dog's liver, and that this organ disposes of it without evident damage to itself. If, however, the dog be fed with fat symptoms of absorption appear; and such symptoms are indeed the rule, apart from diet, in puppies, and to an even greater degree in certain other animals. Clearly the experimental evidence cannot exclude the suggestion that absorption may take place in man.

From the clinical side P. A. Maplestone and A. K. Mukerji [3] have studied tetrachlorethylene at the Carmichael Hospital, Calcutta. Giddiness, vomiting, or drowsiness occurred in 8 of 38 hospital cases receiving 3 c.cm. of the drug. When it was combined with 1 c.cm. of oil of chenopodium these toxic symptoms appeared in 26 of 37 cases. The drugs were given in capsules, so it must be assumed that absorption occurred from the alimentary canal and that the drug passed through the liver; clinical evidence upholds the caution that the effects on the full-grown dog cannot be held fully evidential for man. These writers also investigated the worth of tetrachlorethylene against hookworms, using more exact diagnostic methods than had hitherto been employed. Counting by Stoll's caustic soda method the number of hookworm eggs passed before and after the treatment mentioned, the relative figures led to the conclusion that 60 per cent. of the worms had survived. By Clayton Lane's direct centrifugal floatation (D.C.F.) they obtained the added information that 80 per cent. of their patients remained infected, and they cite one series of 12 cases in 8 of whom Stoll's technique discovered no eggs after treatment, whereas D.C.F. showed that actually 11 of them remained infected. It is pointed out that

[1] Amer. Jour. Trop. Med., 1925, v., 229.
[2] Amer. Jour. Hyg., 1929, ix., 430.
[3] Ind. Med. Gaz., 1929, lxiv., 424.

no other investigation on this drug has employed methods exact enough to determine the extent to which it really disinfects, and the following is added: "The great superiority of Lane's method over any other for demonstrating light infections is quite sufficient to explain the low percentage of cures in the writers' cases. It was the discovery of the ridiculously low rate of complete cure that even the most powerful vermifuges bring about when checked by the direct centrifugal floatation method that led the writers to make use of the percentage reduction in eggs as a test of drug efficiency." Accurate egg-counting methods, and Stoll's is not among the most accurate, certainly give the measure of any drug's anthelmintic efficiency and form a valuable guide to the physician. They are probably of much less interest to his patient who rightly demands his own complete disinfestation; and the more clearly it is realised by both physician and patient how constantly the most popular anthelmintics fail to effect this, the more urgent will be the pressure for sustained research aiming at discovering something better. It is self-satisfying to focus attention, as is generally done at present, on a lessened egg count rather than on a gross failure to disinfest. It is more straightforward to face the fact that we have at present no sure and safe anthelmintic against hookworms.

PROSTITUTION IN NEW YORK.

THE history of the New York system of prostitution is interesting. Up to 1915 the solicitation laws there were similar in effect to those now in force in London but in that year a change was made, so that solicitation for prostitution became an offence in itself, without reference to "annoyance." In New York it is now a legal offence to "commit" or "offer to commit prostitution," or to "induce, entice or procure another" to commit fornication. In 1921 a man was arrested for breach of this law, but the magistrate held that prostitution was a practice of women only, and that a man cannot be a principal under that charge. Thus only women are now liable for that offence. The January number of the *Shield*, the journal of the Association for Moral and Social Hygiene, which takes note of this position, delineates, mostly by quotation from the official American Report, the results, up to the end of 1928, of the activities of the "Committee of Fourteen," a body which was created some twenty years ago with the object of "cleaning up" New York. The report of this Committee is mainly an exposition of the working of the present system, for which that Committee is chiefly responsible; the report therefore has no hostile bias. By constant suppression of solicitation the Committee have succeeded to a wonderful extent in "cleaning" the streets. So far so good. But the Committee are now faced with a "new and unforeseen thing." A few short quotations chosen from a long series will explain what that is.

"There has sprung up a mushroom growth of night-clubs and speakeasies. . . which have furnished commercialised prostitution with a long-wanted place and opportunity. . . These provide at the present time the greatest source for the making of new prostitutes . . . Clandestine clubs are steadily permeating every section of the city . . . the name 'clubs' is really a subterfuge . . . Respectable and legitimate clubs have hostesses . . . the speakeasy houses of prostitution now call their inmates hostesses . . . 60 per cent. of the agencies investigated may be said to be shady, and 40 per cent. are definitely engaged in the traffic . . . One of the requirements specified by proprietors of clubs and speakeasies seeking hostesses is that they must be 'regular' . . . Instead of a white-slave traffic, the traffic is what might be termed a traffic in hostesses . . . The interchange of girls in the clubs is rapid . . . It would seem that the low-class clubs and speakeasies are virtually prostitution mills. . . Those hostesses are most valuable . . . if they will become what is called 'reasonable.' . . . Perhaps one of the most important factors is . . . the taxicab drivers, runners and doormen, who secure a percentage for introducing male guests . . . The demand (for girls) is so great that there are not nearly enough ready-made prostitutes to supply it; hence the recruiting through employment agencies . . . There is a definite tie-up between clubs and call-flats . . ."

Commenting on the activities of the New York Committee, the *Shield* remarks that they set about cleaning up the streets before public opinion was improved, and thus prostitution has been driven underground. Not but that the police are in full cry; the number of women dealt with under charges of prostitution increases yearly; 1928 far exceeds the record of previous years. The result for the woman depends on whether she be suffering or not from venereal disease; if it is a first conviction, and she is diseased, she goes to the Avenue Hospital for an indeterminate period till she is considered no longer dangerous; for a subsequent conviction, the penalty is 100 days, or an indefinite commitment to a reformatory. Severe as these punishments are, the evil grows steadily. The Committee of Fourteen suggest as their desiderata: prohibition of all employment of females in restaurants, including those employed as singers or performers; increased allowances for police investigators; abolition of "closed" dance halls, and closer supervision of dance palaces. The fact is that the Americans have decided to move steadily along the line of suppressing prostitution; of clearing prostitutes off the streets, and subjecting them (not their male partners) to severe penalties. The report indicates that the evil is progressing under very disturbing forms. It is not the first time in history that suppression has been vigorously tried, nor the first time (if it prove so) that it has failed. Whatever view we take of it, this report, or at least the *Shield* account of it, ought to be in the hands of all who take a practical interest in the likely revision of our own solicitation laws. In this country the Street Offences Committee have published their report; a lot will depend on how far and in what manner its recommendations are given the force of law. It may be desirable to clean the streets, but it is far more desirable to clean public opinion.

EYE DISEASES IN CHINA.

AMONG the earliest practitioners to place Western medicine upon a sound footing in China were two very able ophthalmic surgeons, Dr. T. R. Colledge, of the British East India Company, and Dr. Peter Parker, an American missionary. Both of them founded eye hospitals in Canton and elsewhere, and Dr. Parker, between 1834 and 1844, performed numerous operations for cataract which keep alive his memory to this day as one who restored sight to the blind. The tradition thus started has continued down to our own time. The Peiping (Pekin) Union Medical College, founded in 1921, has established a department of ophthalmology which has brought in succession the renowned Ernst Fuchs, his son Adalbert Fuchs, and now Prof. Arnold Pillat, to develop its activities. The object is not so much to train ophthalmic specialists as, in view of the important rôle played by eye diseases in China, to make the native doctors more capable of dealing with the eye cases they are certain to meet in large numbers. They will then be better equipped than if they had only received the scanty tuition in the subject given in the ordinary curriculum. The *National Medical Journal of China* for October, 1929, is a special "eye number" and contains two articles by Dr. Pillat on the results of treatment of eye diseases by Chinese quacks. Their methods, which embody traditions dating from remote antiquity, frequently inflict quite gratuitous injuries on the unfortunate patients. In spite of the amount of blindness directly traceable to these quacks they will be difficult to supplant, partly on account of the conservative instincts of the native Chinese, and partly owing to the traditional ritual with which the operative procedures are associated—mostly "needlings" either of the eye itself or of points in the face supposed to bear a relation to the eyes. Dr. Pillat calls attention to a peculiarity in Chinese eyes compared with European, in that the upper limbus is frequently exaggerated in sickle form above the cornea so that the shape of the anterior corneal surface is elliptical with a white crescent above, which by the novice may be taken for an arcus

senilis, and which affects the landmarks for incision into the anterior chamber when operating for cataract or glaucoma. A third contribution from the same pen concerns the eye symptoms associated with deficiency of vitamin A in adults. In China malnutrition is so common that the disease known as keratomalacia, which in the West is practically confined to infants, frequently attacks adults and is an important factor in the total incidence of blindness. The number also contains articles by native Chinese doctors. C. H. Chow describes some rare injuries of the cornea, including one inflicted by the claws of a cat, and the use of the slit-lamp in discovering the frequency and localisation of lenticular opacities. W. P. Ling writes at length on the ocular findings in infectious diseases, such as typhus, typhoid, dysentery, kala-azar, and pellagra, carefully distinguishing those which may stand in causal relation to the disease.

THE THIRD HASTINGS LECTURE.

Sir Andrew Balfour, Director of the London School of Hygiene and Tropical Medicine, will lecture on "Health and Empire" in the Great Hall of the British Medical Association, Tavistock-square, London, W.C.1, on Wednesday, March 12th, at 8 P.M. The lecture is the third "Sir Charles Hastings Lecture," inaugurated by the British Medical Association for the purpose of offering to the public information by the highest authorities on matters of general public health interest. The first lecture was given on Jan. 24th, 1927, by Lord Moynihan on "Cancer and How to Fight It"; the second on March 21st, 1928, by Sir George Newman, on "The Foundations of Health." For the third lecture the chair will be taken by Lord Riddell, President of the Royal Free Hospital, and after the lecture relevant questions in writing will be invited. Admission will be free, by tickets obtainable on application to the Financial Secretary, British Medical Association House, Tavistock-square, London, W.C.1. Seats not occupied by ticket-holders by 7.50 P.M. will be available for other members of the public.

THE GROWTH OF CHILDREN.

Dr. Gustav Nylin has lately published[1] some observations on the growth of groups of children during a year. His data include estimations of height and weight, the standard metabolism, and the oxygen capacity of the blood, and his material consisted of Swedish school-children of various ages during the years 1926–27 and 1928–29. The measurements of height and weight were made with great accuracy under controlled conditions, the children being always examined at the same time of day so as to obviate error due to the normal daily variations. The basal metabolism was estimated by Krogh's apparatus; the hæmoglobin was estimated at the same time, and the oxygen capacity of the blood was calculated indirectly from this. The results showed that in children of varying ages there is a periodicity of growth during the year, the height increase exhibiting two maxima, of which the larger is from March to May, and the smaller from November to January. The two minima are thus from September to November and from January to March. On the whole it was found that increase of weight varied inversely with increase of height, so that a maximal rise in height coincided with a minimal rise in weight. Besides this periodicity, weight and height in boys showed a periodicity which Nylin terms endogenous; he finds that periods of increased growth tend to be followed by corresponding periods of decrease. Standard metabolism for children round about the age of six years has a periodicity, closely connected with that of height increase, in that during such periods the metabolism rises. It was noted, in the case of one child who was very carefully studied, that a close connexion exists between height increase and metabolism, for both were found to be maximal at the same time of the year and this was when sun radiation was also maximal. Corresponding variation in the oxygen capacity of the blood was also found in school-children of all ages, the minimum occurring during the dark period of the year and the maximum during the light. The latter, however, appeared several months later than the corresponding maximal and minimal metabolic variations. To test the theory that light is one of the causes of height increase, Nylin made some separate observations on a large group of children who were exposed to mercury-vapour lamps and found that such irradiation appeared to stimulate growth in height. These results are of interest in view of the recent observations in England.

[1] Acta Med. Scand., 1929, Suppl. xxxi.

SOCIAL HYGIENE.

AMONG those affected by the new Local Government Act is the British Social Hygiene Council,[1] which will no longer receive a central grant from the Ministry of Health but will depend on the subsidies which local authorities see fit to give. Appeals for such amendments of the Bill as would have safeguarded the work of the Council were not successful, but a strongly worded circular was issued to local authorities by the Minister, pointing out the necessity for contribution to propaganda from a central fund. A final grant of £12,000 has been made by the Ministry, but contributions from the local authorities will not be received until December, 1930, and the period between April, 1930, and the following December will have to be covered by voluntary subscriptions amounting, it is estimated, to £5000. The British Social Hygiene Council considers that it would be a failure in public duty to cut down expenditure during these critical months, but should the contribution of the local authorities prove to be inadequate, and should additional voluntary funds not be forthcoming, this policy will have to be reconsidered, to the detriment of a valuable service. A resolution was passed by the Council in 1929 asking that the Parliamentary Committee should consider the possibility of amending the Insurance Acts in such a way that approved societies shall be able to contribute to funds for health education under the sanction of the Ministry of Health. Should this amendment be passed it would open a valuable source of income to the Council.

The decrease in the incidence of venereal diseases during the last few years may at least in part be attributed to the work of the Council. In the Report for 1929 it is stated that the incidence of new infections with syphilis in the Army (an index of that in the civil population) was 9·8 in 1921, and only 2·6 in 1926. The report goes on to emphasise the great value of propaganda in warning the public of the dangers of venereal infection, and in bringing infected persons early for treatment. There has been in the past much difficulty in gaining for this unpopular branch of health propaganda the publicity it requires, but of late years the press has been more ready to lend its coöperation by giving prominence to the advertisements of the Council. Films and lectures have been valuable, and it is noticeable that the showing of a film is often followed by increased, and more prolonged, attendance at the centres. A sympathetic medical officer and almoner can do much to ensure the return of patients who have once attended. One of the effects of propaganda is to bring up for examination those who have been exposed to infection, many of whom are free from venereal disease; an opportunity for advice on prevention is thus offered. Many women infected by their husbands after marriage may be ignorant of their condition, or may object strongly to the thought of attending public centres. It would be advisable for such women to attend clinics run in conjunction with infant welfare centres, and provision should be made

[1] Fourteenth Annual Report of the British Social Hygiene Council (Incorporated), Cartaret House, Cartaret-street, S.W.

for this where possible. Distribution of propaganda to adolescent persons and to children presents a separate problem. It is not thought desirable to teach sex hygiene in school classes, and the Council aim to approach children through parents and teachers, who should attend suitable conferences and lectures. Children leaving school might be addressed, and shown such of the social hygiene films as might be considered advisable. Leaders of clubs and socials should have an adequate knowledge of the physiology and psychology of adolescence, and should coöperate with suitably qualified lecturers to provide instruction on sex for the members of the club. Mentally defective persons are liable to contract venereal diseases early, and to add dangerously to their dissemination. The Council urge that under the new Act the local authorities should provide suitable accommodation for this group and also for "border-line" cases. The work of the Council, carried on in centres throughout this country, as well as overseas in India, New Zealand, Australia, South Africa, and elsewhere, has included the efficient treatment of all cases presenting themselves, as well as a determined publicity campaign. The results achieved, on which the Council has every hope that it can yet improve, are due largely to a well-directed expenditure on propaganda, and adequate support of this policy should be a serious concern of the local authorities under the new Act.

THE DEFINITION OF DRUGS FOR PURPOSES OF MEDICAL BENEFIT.

ABOUT a year ago an advisory committee was appointed to consider and report to the Minister of Health upon questions referred to them as to the definition of drugs or medicines for the purposes of medical benefits under the National Health Insurance Acts. This committee, over which Dr. D. G. Greenfield presided, have now issued two reports. The first defines their memoranda of reference; they were invited to indicate that each of the substances and preparations referred to them was either (*a*) never a drug, (*b*) always a drug, or (*c*) sometimes a drug. Their second charge was to consider and advise what action should be taken with respect to (1) the practitioner, (2) the chemist, (3) the insurance committee, and (4) the insured person when substances coming under the first or third of these classes were prescribed for insured persons. They have suggested regulations which provide that an insurance committee shall have power to recover from a practitioner the cost of any substance prescribed which is *not* a drug or medicine, and shall pay the amount so recovered into the Chemists' Fund. The rest of the proposed regulation makes provision for the course of action to be pursued in cases where doubt arises, which should be referred ultimately to referees (two practitioners) nominated by the Minister. The second report gives the categories into which substances so far submitted have been placed.

THE Milroy Lectures of the Royal College of Physicians of London will be delivered at the College at 5 P.M. on Feb. 27th and March 4th and 6th by Dr. J. Alison Glover, a medical officer of the Ministry of Health. His subject will be the Incidence of Rheumatic Diseases, and any practitioner will be admitted on presentation of a visiting card.

THERE will be general regret at the announcement, made on this page, that Air Vice-Marshal David Munro, Director of Royal Air Force Medical Services, is retiring at the end of this month. Air Commodore John McIntyre has been selected to succeed him. Air Vice-Marshal Munro is taking up the appointment of secretary to the Industrial Health Research Board, under the Medical Research Council, in succession to Mr. D. R. Wilson, who has lately been appointed Deputy Chief Inspector of Factories at the Home Office.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Lt. Comdr. W. A. Jolliffe to rank as Surg.-Comdr.

Surg.-Lt. T. F. Barlow is transferred to the Permanent List.

ROYAL ARMY MEDICAL CORPS.

The undermentioned relinquish their appointments: Lt.-Col. G. A. D. Harvey, R.A.M.C., Asst. Dir. of Hygiene, War Office; and Maj. J. W. L. Scott, R.A.M.C., Dep. Asst. Dir.-Gen. A. Med. Servs., War Office.

The undermentioned appointments are made: Maj. W. B. Purdon, R.A.M.C., to be Asst. Dir. of Hygiene, War Office; and Maj. A. D. Stirling, R.A.M.C., to be Dep. Asst. Dir.-Gen. A. Med. Servs., War Office.

The undermentioned Lts. (on prob.) are confirmed in their rank: J. G. Black, D. A. O. Wilson, T. R. J. P. Kerwick, C. A. Levy, S. W. K. Arundell, and A. H. Weston.

TERRITORIAL ARMY.

Capt. C. Helm (Lt.-Col. Res. of Off.) to be Maj.

Lts. A. O'Hanlon and H. A. C. Gregory to be Capts.

The King has conferred the Territorial Decoration upon the undermentioned Officers: Lt.-Col. George Herbert Rae Gibson; and Majs. Arthur Morrell Johnson, Clement Arthur Webster, and James Alwin Colville Scott.

ROYAL AIR FORCE.

It is announced that Air Vice-Marshal D. Munro, C.B., C.I.E., Director of the Royal Air Force Medical Services, will be placed on the retired list at the beginning of next month, when he will be succeeded by Air Commodore John McIntyre, M.C.

Air Vice-Marshal D. Munro entered the Indian Medical Service as a Lieutenant in 1902. During the war he served in France and the Middle East, and besides being decorated with the C.I.E. was twice mentioned in despatches. In December, 1919, he relinquished his commission in the Indian Medical Service and was granted a permanent commission in the Royal Air Force Medical Service on taking over the duties of Principal Medical Officer, Headquarters, Royal Air Force, India. He was promoted to the rank of Air Commodore and appointed Director of Royal Air Force Medical Services in November, 1921, and has held this appointment since that date. He was made a Companion of the Order of the Bath in 1924, and in the following year was promoted to the rank of Air Vice-Marshal and also appointed an Honorary Surgeon to His Majesty The King.

Air Commodore J. McIntyre joined the Royal Army Medical Corps as a Lieutenant in December, 1915, and for his services during the war was awarded the Military Cross. On the formation of the Royal Air Force in 1918 he was granted a temporary commission as Major, and employed on medical staff duties at the Air Ministry. In August, 1919, he accepted a permanent commission in the Royal Air Force Medical Service, and subsequently served as Principal Medical Officer to the R.A.F. commands in India and at Halton. He was promoted to the rank of Group Captain in July, 1927, and last year to the rank of Air Commodore.

A. H. Barzilay is granted a short service commission as a Flying Officer for three years on the active list, and is seconded for duty at the Royal Southern Hospital, Liverpool.

RESERVE OF AIR FORCE OFFICERS.

Flying Officer T. Glynn relinquishes his commission on completion of service.

INDIAN MEDICAL SERVICE.

Capt. J. W. F. Albuquerque to be Maj.

J. A. W. Ebden to be Capt. (on prob.).

Lt.-Cols. J. W. Barnett and F. H. Stewart retire from the Service.

DEATHS IN THE SERVICES.

Lieut.-Colonel William Coates, late I.M.S., who died at Hove on Feb. 11th, aged 78, was a graduate of the Royal University of Ireland, where he obtained the M.D., M.Ch., in 1876. He served throughout the Afghan War of 1878–80 and was present at the capture of Ali Musjid at the battle of Charasia and at the occupation of Kabul. He was one of the medical officers on the march of Roberts from Kabul to Kandahar (mentioned in despatches, medal with clasp and bronze star). He also served in the Mahsood Wuzeeree Expedition of 1881, and subsequently was transferred to civil surgeoncy work. For some years he was stationed at Lahore. He retired from the service in 1907.

Surgeon Lieut.-Commander Archibald Primrose Anderson-Stuart, R.N., who died at Deal on Feb. 16th, aged 31, was the eldest son of the late Sir Thomas Anderson-Stuart, of Sydney, N.S.W. He was a graduate of Sydney University and became a Surgeon-Lieutenant in the Royal Navy in 1923. After serving in the East Indies on the flagship of Admiral Sir Herbert Richmond, he was appointed to the Royal Marine Infirmary at Deal. In 1928 he served in the battleship *Benbow* in the Atlantic Fleet, and later in the cruiser *Caradoc*. He became Surgeon Lieutenant-Commander last year.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXCIX.—TREATMENT OF BENIGN UTERINE HÆMORRHAGE AT THE MENOPAUSE.

In the normal menopause the periods either cease abruptly or become gradually more or less frequent, the loss varying in amount, until within a few months there is complete cessation of menstruation. Any excessive loss, occurring either periodically or extending over long periods, must be considered as pathological, and a careful examination and diagnosis of the general and local condition should be made immediately rather than delayed until a severe secondary anæmia or other symptoms develop. Unfortunately, a not uncommon cause of hæmorrhage occurring at the menopause is carcinoma of the uterus or its adnexæ, and it is of first importance, by means of a pelvic examination or a diagnostic curettage, to exclude its presence. In this article benign hæmorrhage alone is considered. In dealing with the various methods of treatment it is usual to group uterine hæmorrhages under various headings according to their cause. There are, however, so many varying opinions on causation and pathology that for practical purposes it is simpler to consider treatment under two headings: (1) hæmorrhage occurring in the absence of any obvious abnormality of the genital organs: (2) hæmorrhage due to non-malignant pathological conditions of the uterus and adnexæ, such as hyperplasia of the endometrium or fibromyomata or adenomyomata of uterus.

Hæmorrhage in the Absence of Obvious Abnormality.

Hæmorrhage occurring in the absence of any obvious abnormality of the genital organs may be due to: (*a*) deficient muscular contraction, (*b*) disturbances of the circulation, (*c*) functional disturbances of the ovary.

(*a*) *Deficient muscular contractility of the uterus*, the "metropathia hæmorrhagica" of Aschoff and Pankow, is characterised by a large, rather soft uterus, with thick walls. Theilhaber explains such hæmorrhages as due to a localised uterine arteriosclerosis, or "insufficienta uteri," accompanied by compensatory hyperplasia of the connective tissue.

(*b*) *Disturbances of the circulation* such as occur in patients suffering from heart, kidney, or lung disease. An unrecognised syphilis may be responsible for serious hæmorrhages which clear up with suitable antisyphilitic treatment. Certain blood dyscrasiæ, such as purpura, or calcium deficiency, may give rise to hæmorrhage at the menopause, also faulty blood coagulation.

(*c*) *Functional disturbances of the ovary*, such as the persistence of the Graafian follicles associated with absence of the corpus luteum, may lead to hæmorrhage. This condition is probably due to some endocrine disturbance or hormonal deficiency, and causes usually a severe metrorrhagic hæmorrhage.

Accurate diagnosis is in no field of medicine more important than here. The history of the patient, together with an examination of the heart, lungs, and abdomen, and the urine, a careful vaginal or rectal examination, and, if necessary, a diagnostic dilatation and curetting, should indicate to which of the three causes the hæmorrhage is due:

(*a*) If there is a decrease in the muscular tone of the uterus, and deficient muscular contraction, a course of ergot is indicated. This may be given as—

Normal liquid extract of ergot (physiologically standardised) in 20 min. doses three or four times daily, just before and during the periods. Or as—

"Ergot aseptic," made up in 1 c.cm. bulbs, representing ergot 2 g., and given hypodermically night and morning. Ernutin, 30–60 min. per os t.d.s., or 5–10 min. hypodermically. Tab. ergotininæ citras, gr. 1/200 hypodermically t.d.s., or tyramine, gr. ½ tablets hypodermically. Hydrastin also increases uterine contraction and may be given with or without ergot, either as liq. extract in 30 min. doses, or in a pill as hydrastin, gr. ½ or 1.

Cotarnine hydrochloride (stypticin) in tabloids, gr. ½, four times daily, or styptol tablets, gr. ½ four times daily, are great standbys, and sometimes succeed when ergot fails. And lastly—

Pituitary gland extract (post. lobe), in sterules 0·5–1 c.cm., containing 5–10 units respectively bis die, intramuscularly.

(*b*) Here the primary cause must be dealt with and appropriate treatment prescribed. If the calcium content of the blood is deficient, a diet rich in calcium salts should be given—e.g., green vegetables, farinaceous foods, buttermilk, &c. Salt should be used sparingly, and calcium lactate, grs. 60, given daily for three weeks at a time (a teaspoonful dissolved in a glass of hot water, and one-third taken at breakfast, lunch, and dinner is a useful way of prescribing it). If the hæmorrhage is due to faulty blood coagulation, any of the commercial forms of thrombin may be injected subcutaneously. (To ascertain the coagulation time, take 5 c.cm. of blood from the arm into a test-tube, and compare with the mean time of normal blood taken under the same conditions, which does not exceed ten minutes.)

(*c*) Here *organotherapy* is indicated. There is still considerable doubt as to whether excessive menstruation is more likely to be associated with hyper- or hypothyroidism, and what part the pituitary thymus and suprarenals play. Preparations of *ovarian extract*, injected intramuscularly, and with or without pituitary or thyroid, or of *corpus luteum* may be found useful.

Hæmorrhage Due to Non-Malignant Pathological Conditions.

The commonest pathological conditions to which hæmorrhage may be due are: (*a*) glandular hyperplasia of the endometrium, and (*b*) fibromyomata of the uterus and adenomyomata.

Glandular Hyperplasia of the Endometrium.

In this condition the uterus is somewhat enlarged and hard, the bleeding is severe, and either menorrhagic or metrorrhagic in type. We have a sure and safe treatment in either deep X ray therapy or radium.

Deep X ray therapy is perhaps of greater service in this type of disease than in any other. As developed and practised at the present time it is unrivalled both for its certainty in producing an artificial menopause and its freedom from any serious after-effects. With one of the new types of apparatus, such as the 1929 Stabilivolt, the treatment can be completed in from 48 to 90 minutes either at one sitting, or if it is preferred, half the treatment can be given on two consecutive days.

The best time to choose is within ten days of the last menstrual period, the Graafian follicles being then at a younger state of development and more easily affected by X rays. The patient should be given an aperient the day before the treatment and a rectal washout on the evening before. The urine should be systematically examined, since the presence of albumin or sugar materially affects the dosage. The temperature should be normal. It is important that the skin of the abdomen and dorsum should be free from any eruption. The bladder should be empty, and the patient should have had only a light breakfast of tea and one slice of toast one and a half hours before treatment. It is desirable that the X ray room should be large, warm, airy, light, and ventilated in such a way as to secure a constant change of air in the room. The couch should be comfortable, and the lead rubber sheeting should be so arranged that only the area to be irradiated is exposed at one time.

If the uterus is only very slightly enlarged, four areas of 6 by 8 cm., one anterior and one posterior to each ovary, with an interval between 4 cm. wide, using 180,000 voltage, three M. amps. in the secondary current, a filter of ·5 Cu.+ 2 al., a U.S.D. of 12·15 min., and a depth dose of 18·5 per cent. will be sufficient to ensure a permanent sterility in a

woman of 45 years of age, provided her Baudelocque diameter is not more than 20 cm.; if it is, an extra field is desirable.

After such a treatment the patient menstruates as usual once, in a small percentage of cases twice, after which she shows some vasomotor disturbances such as "flushes," although these as a rule are less severe than those occurring in a natural menopause. Partly due to the cessation of the periodic hæmorrhages, and partly due to an unknown factor described by some authorities as the "Steinach effect," possibly an auto-oöphortherapy, caused by the ovaries and uterus remaining in loco the patients not only quickly regain their normal health, but in a very large percentage report "that they feel ten years younger."

Radium has much the same action, and will, in suitable dosage (approximately 1200 mg. hours), induce an artificial menopause. Indeed, it may also be called a specific for the treatment of climacteric hæmorrhage due to glandular hyperplasia of the endometrium.

Under an anæsthetic, and with surgical asepsis, posterior and anterior vaginal speculæ are inserted, the cervix carefully cleansed with weak lysol or acriflavine. It is important that no antiseptic containing a metal is used, on account of possible secondary radiation. The anterior lip of the cervix is grasped with a volsellum, and an intra-uterine sound inserted, to ascertain the length and direction of the uterine cavity. The cervical canal is then carefully dilated up to about No. 10 Hegar, and the radium introduced.

A dose of from 50 to 75 radium element is usually sufficent. This is best made up in two or three needles, each containing 25 el. and put in containers of platinum 1 mm. thick, placed in tandem in a rubber case or tube, and left in situ 22 hours. Thus a dose of 1200–1500 mg. hours is usually given.

Fibromyomata of Uterus and Adenomyomata.

For this condition we have the choice of two forms of treatment: (1) Surgical—myomectomy, or subtotal or total hysterectomy. (2) Deep X ray therapy, and in a small percentage of cases, radium. In my own series of 445 cases I did a hysterectomy or myomectomy in 231 cases, deep X ray therapy in 206, and used radium in eight.

A preliminary examination under an anæsthetic, and a diagnostic dilatation and curettage may be indicated.

1. *Surgical interference* is imperative under the following conditions: (1) a tumour reaching above the umbilicus; (2) pedunculated subperitoneal tumours, or (3) submucous tumours; (4) in the presence of tumours of the ovaries; (5) when degeneration is suspected, either necrobiotic or carcinomatous or sarcomatous; (6) in all cases of doubtful diagnosis.

2. *Deep X ray therapy* is the treatment of election where the tumour is interstitial, the hæmorrhage severe, and the diagnosis clear. The technique varies only slightly from that given above. If the tumour is big, larger fields and a greater focal distance to increase the depth dose are required, to bring about a reduction in the size of the tumour, as well as the cessation of the hæmorrhage.

3. *Radium* is used with success also in a small proportion of such cases if the following contra-indications, in addition to those mentioned in connexion with X ray therapy, are remembered—namely: (1) The presence of submucous or interstitial fibroids which encroach on the endometrium. Here the necrosis caused by the radium may lead to a long intractable uterine discharge, septic absorption, and general ill-health. (2) The presence of a pelvic infection, whether recent or of long standing.

In deep X ray therapy and radium the rays are essentially the same, for in radium we have a natural source, and in X rays an artificial source of Gamma rays. Although radium is invaluable in the treatment of certain types of cancer, especially in cancer of the cervix, X ray therapy is greatly to be preferred in the treatment of fibromyomata of the uterus.

It can produce the same results in this field as radium, whereas the converse does not hold good. In proper hands it is entirely free from danger, whereas radium may produce febrile or inflammatory reactions, and occasionally even suppuration, complications, which are as a rule transitory and not of a serious nature, but which in exceptional cases and in the proportion of 3 per 1000 (Béclère and Regaud) prove fatal. In addition, we must remember that radium therapy is by no means free from discomfort and pain. Its application entails an anæsthetic, confinement to bed, and the presence in the uterine canal of metal tubes for at least 22 hours. X ray treatment, on the other hand, is rapid (40–90 minutes), involves no anæsthetic and no after-treatment. The patient, if she is a worker, need not take special sick leave, unless she is suffering from the effects of the anæmia caused by the menorrhagia. It is sure—the effects are gradual, one or possibly two monthly periods occurring after treatment, the menopausal symptoms (flushes, &c.), coming on slowly, and being less than those occurring at the natural menopause. It is safe—there is no mortality, no resulting endometritis or dyspareunia, no alteration in sexual characteristics. The only disadvantage is the expense of the apparatus and its upkeep, and the skill, knowledge, and care needed in its application.

LOUISA MARTINDALE, M.D., B.S. Lond.,
Senior Surgeon, New Sussex Hospital, Brighton;
Surgeon, Marie Curie Hospital, London.

Special Articles.

THE DEATHS OF BRITISH MERCHANT SEAMEN IN 1928.

BY FLEET SURGEON W. E. HOME.

THE yearly Board of Trade Return[1] which includes the deaths on vessels registered in the United Kingdom in 1928 (classified they are in accordance with the short list of the Registrar-General with the same modifications as in 1927), tells us that the "first crews" of vessels were, British, in sail, 1600, and in steam and motor vessels, 162,700, making 164,300 British in all, with 18,900 foreigners and 56,500 Lascars, giving a total of 239,700. The Return indicates that this number, the "first crews," furnishes an approximate basis for estimating the variation in the extent of the risks from year to year, though no helpful comment on the variation is put forward. But in the last census of seamen, taken on March 31st, 1926, it was found that the British seamen employed on that day were 81 per cent. of those stated that year among the "first crews," and that the Lascars were 91 per cent. of their figure, the remainder being no doubt on leave or waiting for ships, or unemployed. So, to get a truer idea of the population at risk from day to day, to represent the daily ration strength, it will be better to take these proportions of the "first crews," in round numbers, for British, 133,000, for Lascars, 51,000, and with them to calculate death-rates to indicate if health is improving at sea. The resulting figures though not meticulously correct will at least give us a first significant figure that will be reliable, and the Board of Trade (since 1920) does not even do so much for us as that.

The total British deaths were 861 (6·45 per 1000), of which 403 (3·02) were attributed to disease, 19 (0·14) to alcohol, and 439 (3·29) to violence, of them

[1] Return of Shipping Casualties and Deaths on Vessels registered in the U.K., as far as reported to the Board of Trade in the year, 1928. London: H.M. Stationery Office. 1929. Pp. 8. 2s.

29 (0·22) to suicide, 379 (2·85) to accidents, almost the same figures as in 1927. The total Lascar deaths were 236 (4·63), of which 168 (3·29) were thought due to disease, none to alcohol, to violence 68 (1·33), of which 16 (0·31) to suicide, 43 (0·84) to accidents, the small decrease chiefly in deaths from disease. About half the British deaths were due to accidents, but only a fifth of those of Lascars. The chief named individual causes of death from disease were, for British seamen, pneumonia, 51 (0·38), an increase, from tubercle of lung, 23 (0·18), a decrease, and enteric fever, 21 (0·16); for Lascars, pneumonia, 42 (0·82), an increase, for tubercle of lung, 23 (0·45), a decrease. It will be noticed that the death-rates for pneumonia and tubercle of lung for Lascars (0·82 and 0·45), who need only have 72 cubic feet of space on their sleeping decks, are roughly double of those (0·39 and 0·18) that occurred among British seamen whose least allowable cubic space is 66 per cent. greater (120 cubic feet). During the last five years (1924–28) deaths from tubercle of lung have been separated in the Return from deaths from tubercle "other," and these having been added together and divided by the five-year totals of "first crews," we find that the death-rate in the five-year period has been, for pneumonia, in the neighbourhood of 0·3 for British, 0·7 for Lascars; for tubercle of lung, British, 0·16, Lascars, 0·7 per 1000, the Lascars having a pneumonia rate twice and a phthisis rate four times that of the British. The true death-rates were really larger, but not materially different. It may be worth while to look at the change in 30 years; then we have, per 1000, "first crews,"

		1901–02.	*1928.*
Pneumonia	British	0·3	0·3
	Lascar	0·9	0·7
Tubercle (all)	British	0·3	0·2
	Lascar	1·1	0·7

from which it appears that hygiene has done more in 30 years for the Lascar than for the British sailor, and more against tubercle than to prevent pneumonia.

It will be observed that the average number of British seamen employed daily, 133,000, is midway between the number employed in the Army in 1928, 183,333, and in the Navy in 1927 (latest year available), 93,230. The death-rates are, Army, 2·50; British merchant seamen, 6·45; Navy, 2·15, and by violence, causes other than disease or alcohol, Army, 0·89; British merchant seamen, 3·29; Navy, 0·77. Merchant seamen being older have a higher death-rate of course. So far as can be calculated, the middle or average age is, in the Army, 24; in the Navy, 25½; in the British merchant service, 30 (the highest group in the Army statement is "40 years and over," in the Navy, "45 and over," in the census of seamen, "50 and over." Why, by the way, do not they all state their ages in the five-year periods of the Registrar-General? What is the practical use of the grouping of the census of seamen "under 18," "18–24," "35–49," except to hinder research?); still when every allowance is made the death-rates of the British merchant seamen do seem excessive, as indeed was said in the Registrar-General's last Decennial Supplement, Appendix B.

The Return tells of the deaths of 403 seamen from disease, of 379 from accidents. The Board of Trade makes no attempt to discuss or explain these facts, and indeed it has no staff for that purpose, but it assures us that if need should arise it will ask the Ministry of Health what to do. Does it not seem to professional, indeed to intelligent lay, opinion that it would be an advantage if the Board, having received the reports of deaths of seamen, at once sent them on to the Ministry, whose expert staff would more quickly realise any need for special attention or action than would the exceptionally intelligent but professionally uninstructed staff of the Board of Trade? Such action has been from time to time invited by the Royal Sanitary Institute, and by others, but nothing seems to happen, and death-rates do not fall as they should.

It will be noticed that, in 1928, 379 British seamen died from accidents. Of these and of the efforts the Board doubtless made for their prevention in future, no mention is made in the Return or elsewhere that I can find. How differently another department manifests its concern in such cases. In 1928 in the factories and workshops of Great Britain there occurred 953 fatal accidents, about which, and the others associated, the Home Office, which has a medical staff, published a book (Cmd. 3360 of 1929) of 150 pages, one page for every six fatal accidents, with statements of contributory causes, prevention, fines, and so on; there were three and a half pages relating to the 100 fatal accidents in docks, as far as dockers were concerned, and 25 pages were included of medical comment by the Senior Medical Inspector, on reading which one feels inclined to ask, With their scanty facilities for washing before meals, are there no seamen suffering from lead poisoning from painting at sea? They are found with difficulty ashore. Are they ever looked for afloat?

In fact, when one remembers that the seamen are in the care of the Board of Trade that cannot tell us their death-rate from year to year, that evidences no intensive care of their accidents or extension to them of the care given to most other workmen, one thinks a little bitterly that this is probably because the seamen, being mostly abroad on any one day, can rarely vote. Is the medical profession satisfied that the health of the seamen is properly safeguarded? Does the seaman get a square deal?

THE LOWER END OF THE ŒSOPHAGUS.

DR. MOSHER'S SEMON LECTURE.

THE Semon Lecture of London University for 1929 was delivered on Dec. 5th, in the Barnes Hall, by Dr. Harris P. Mosher, Professor of Laryngology at Harvard University, the chair being taken by Dr. Dan McKenzie, President of the Laryngological Section of the Royal Society of Medicine. He took as his subject the lower end of the œsophagus at birth and in the adult. The following is an abstract of Dr. Mosher's remarks, which will appear in full later in the *Journal of Laryngology and Otology*.

Anatomical Relations.

The lower end of the œsophagus is occasionally narrowed by the pressure of liver or spleen, either of which may almost close the lumen. At birth there is a long liver-tunnel and often a spindle-shaped dilatation in the lower third bounded above and below by the lungs and liver respectively. A circular narrowing as the œsophagus passes through the crura is very common and is usually accompanied by a sharp spur, which becomes a definite ring-like fold when the stomach turns sharply upwards. The most striking abnormality at birth is a marked narrowing of the cardia. All adult abnormalities, including pouch, may be found at birth. The œsophagus is surrounded by very extensive connective tissue sheath, thicker on the left side and continuous with the lesser omentum and the suspensory ligament of the stomach. These connect it up with the liver and spleen, making possible points of infection. The thickening on the left side may at times be a definite falciform ligament surrounding the left half of the crural opening; this plays an important part in the crural impression found in cardiospasm. One baby showed extensive enlargement of the glands at the bifurcation of the trachea, forming a sheath of glands down to the diaphragm.

A frozen vertical section of a baby at birth shows clearly that the œsophagus comes to a point where it meets the upper edge of the left crus, its angle changing here from transverse to anteroposterior. The terminal portion, the crural arm, is a thin antero-posterior ribbon covered by the left crus. This

section explains the appearance seen in X ray films. If there is peristalsis, the fluoroscopic picture of a œsophagus swallowing barium milk looks like a string of stubby, badly formed sausages. In cases of cardiospasm the barium accumulates in the lower end in a thin awl-like point and a small stream trickles into the stomach when the diaphragm ascends. If the patient takes a deep breath, about half an inch of the pointed end of the œsophagus is suddenly cut off. This is due to the closure of the upper part of the crural angle. The form of the sling made by the crura and the amount of support it gives to the œsophagus varies greatly. Normally the two crura come together sharply before they overlap, but sometimes the angle is wide and little support is afforded. In a dilated, sagging œsophagus the wide crural sling may have a clothes-line effect, and bring about the backward bend which is such an important factor in obstruction.

There is a slight and constant thickening of the œsophageal muscles on the left side at the lower end. A cardiac sphincter is often present and consists of a crescentic enlargement of the terminal muscle-fibres. There is a pronounced thickening of the muscular coat where the gastric mucosa begins. The injection of a baby's stomach with wax explained the horizontal fold often seen beneath a gas bubble in the X ray of cardiospasm. It is due to the transverse colon.

Microscopical Findings at Birth.

The connective tissue in the cone of the diaphragm is like a pile of brushwood waiting for the match of infection, and the œsophagus may be infected before birth. This infection plays the major part in cardiospasm. One baby showed the stomach glued to the left side of the œsophagus by dense adhesions, an invagination of the lower end of the œsophagus into the stomach, a great thickening of the crural fold, and an ulcer of the lower end of the œsophagus. An incipient fibrosis was revealed by a great increase of the submucosa and a marked thickening of the circular muscle bundle at the point where the stomach mucosa joined that of the œsophagus. There are two sets of glands in the œsophagus, an upper set between the cricoid and the bifurcation of the trachea and a lower set at the lower end. The upper set are often found in clusters of some size, and these patches are very liable to ulceration. In the last half inch of the œsophageal mucosa there is often a bluish, ring-like band which contains many glands.

Occasionally an œsophagus shows marked segments at the lower end, a structural weakness which adds to the mechanical difficulties of this part and may be a cause of pouching. I believe that ulcer at the lower end of the œsophagus is more common than is realised and is often the cause of spasm. Old ulcers are revealed in the X ray by rib-like projections. A scorbutic guinea-pig may show almost complete occlusion of the œsophagus from hyaline material; the possible effect of vitamin deficiency on the œsophagus stirs the imagination. The involvement of Auerbach's plexus in cardiospasm is secondary and late and accounts for the rare appearance of peristalsis. The plexus is very resistant to acute infection.

The Barium-striped Bag.

Extraordinarily little pressure is needed to overcome the crura in cardiospasm; two pounds will do it and three or four pounds will dilate the crural crease. Spasm is the natural reaction of any part of the alimentary tract to irritation. The use of the barium-striped bag has made many points clear. It is a modification of the Sippy bag by the addition of four barium lines, so that the shape that the bag assumes can be seen through the fluoroscope. I also use a flexible finder about four or five inches long with a heavy tip one centimetre in diameter. Only once has a finder of this size failed to pass into the stomach in cardiospasm. Where the ordinary X ray shows a small awl-like point, the striped bag shows either a waist-like narrowing in the cone of the diaphragm or a large annular stricture opposite the crural opening. A Seidlitz powder is useful for making a gas bubble in the stomach. As a routine I begin by giving the patient a few mouthsful of barium milk to find the fluid level and then give the powder, upon which the barium passes into the stomach—unless the constriction is very tight—leaving the œsophagus relatively clean for the passage of the bag. The findings in cardiospasm are very constant, either a waist-like narrowing of the lower end or two dents opposite each other, the left being larger and blunter. When the patient drinks barium and then takes a forced inspiration there is a much larger impression in the left wall than in the right. This, like the left dent seen with the bag, is the impression of the left crus. The smaller sharper dents, giving the impression of a string-like stricture, are produced by a fibrosis of the fascial covering of the edge of the crura together with connective tissue changes in the œsophageal wall. Adhesions of the diaphragm to the basal pleura are common in cardiospasm and always on the left side; they show up as saw-tooth projections from the upper surface of the diaphragm and indicate a previous chest infection as the cause of the cardiospasm. Pains suggest ulcer or spasm, or both. Ptosis of the diaphragm and the stomach are so common as to be of little importance but may play a part in cardiospasm, as the crural opening falls with the diaphragm. The crural crease in the œsophagus may be found in these cases above the dome of the diaphragm, since it is a more or less fibrotic change in the wall of the œsophagus. Fibrosis of the crural ring, due to low thoracic or high abdominal infection, is the great cause of cardiospasm. Associated with it in old cases there is a backward bend and fibrosis of the terminal portion and a degeneration of Auerbach's plexus. As a result of such infection, transferred from adjacent glands, the œsophagus at or before birth may show a localised or generalised hypertrophy, ulceration, and adhesion.

MEDICINE AND THE LAW.

Manipulative Treatment and Pleurisy.

AT a Liverpool inquest, held at the end of last month upon the death of Mrs. Webster-Jones of Mossley Hill, it appeared that the husband had been unaware of his wife's illness until a few days before her death. Prof. J. McFall of Liverpool University, who conducted a post-mortem examination, considered that the deceased had been suffering from pleurisy for about a month and that there were indications of there having been peritonitis for over a week. Less than a week before death occurred Mr. Patrick Saul, an osteopath of Wavertree, was called in. He stated at the inquest that he held the diploma of the British School of Osteopathy, London. He had found Mrs. Webster-Jones suffering from a septic throat; complications set in and he recognised pleurisy. The coroner, Mr. G. Cecil Mort, asked Mr. Saul how far the manipulative treatment which he practised extended; what limits to it were there, if any? Mr. Saul replied that according to the ruling of osteopathic schools of thought in America there were no limits to the treatment. Prof. McFall in his evidence said there was no doubt, from his point of view, that the deceased's condition had been quite neglected. The coroner thereupon asked him whether, in spite of the neglect, there was anything done to his knowledge which in any way hastened the death. The witness replied in the negative. The husband had previously stated that both he and his wife were perfectly satisfied with Mr. Saul's treatment.

A verdict of death from natural causes was returned. "In this country," said Mr. Mort in the course of his summing-up, "the registration of medical men is adopted for the protection of the public; as long as that is recognised, the responsibility

rests with the public as to whom they go to for medical advice."

Fresh Inquest Ordered: Coroner and Witnesses.

Expressly disclaiming any reflection upon the coroner, the High Court on Feb. 11th quashed two inquisitions of Dr. J. Divine, coroner for Kingston-upon-Hull, and ordered new inquests to be held before the coroner for the adjoining Howdenshire division. The judges composing the Court announced that they would take time to consider their judgment upon certain points raised by the proceedings, but, as time was of importance, they announced their decision as to the new inquests forthwith.

Two inquests had been held last December upon the deaths of men named Rispin and Boddy from injuries received when their motor-lorry came into collision with a motor-car driven by Mr. George Walton of Hessle. Each inquest resulted in a verdict of manslaughter against Mr. Walton, who thereupon moved to have the proceedings quashed on the ground of alleged irregularities. The irregularities were set out as follows: (1) that the coroner viewed and discussed a damaged vehicle with a man who subsequently acted as foreman of the jury; (2) that the coroner joined the jury in their inspection and discussion of the damaged vehicle without allowing any other parties to be present; (3) that the coroner failed to direct the jury as to the meaning of manslaughter or as to the degree of negligence required to support such a charge; and (4) that the coroner failed to read over his notes to the witnesses before they signed them. Apart from these possible grounds for reopening the proceedings there was a statement that two fresh witnesses were available, one of them being apparently prepared to say that Mr. Walton was not driving at an excessive speed, the other to say that the brakes of the lorry were not in proper working order before the collision. Dr. Divine dealt in an affidavit with the alleged irregularities. He admitted that he viewed the vehicles with a man who was afterwards a juror, but he denied that any discussion took place either then or when the jury viewed them. He said he had invited the interested parties to be present. He claimed that he had carefully directed the jury and he said that he had read over Mrs. Walton's deposition before she signed it, though he had not read over the depositions of other witnesses, as their evidence was clear, and such reading over was, in his opinion, unnecessary. Finally, while contesting the allegations of irregularity, Dr. Divine explained that he was quite willing to hold a fresh inquest if the Court deemed the evidence of the two new witnesses to be material.

It will be recalled that Section 19 of the Coroners (Amendment) Act, 1926, made it clear that the discovery of new evidence will justify the quashing of an inquisition and the holding of a fresh inquest if necessary or desirable in the interests of justice. The significance of this Section lies in the fact that the coroner himself can now apply for a fresh inquest on this ground, whereas formerly the High Court seldom granted a fresh inquest (under Section 6 of the 1887 Act) unless the coroner had in some way been found at fault. Further comment on the High Court's recent decision is reserved until the Court has delivered its considered judgment. Consisting of Mr. Justice Talbot, Mr. Justice Charles, and Mr. Justice Humphreys, the Court is a remarkably strong one for the purpose, and it may be that the judgment will throw valuable light on the coroner's duty to read over evidence to witnesses, and on the extent to which he may properly be present amongst his jury in the absence of parties whose conduct the jury's verdict may impugn.

A "SUN ROOM" AT SOUTHPORT.—The Earl of Crawford and Balcarres last week opened a "Sun Room" which has been added to Southport Convalescent Hospital at a cost of over £4000. It takes the form of a large winter garden or palm court, roofed and windowed with vita glass, and will hold 100 patients.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

HUNTERIAN FESTIVAL.

FOLLOWING the Hunterian Oration (reported fully in another part of this issue) on the afternoon of Feb. 14th, the President and Council of the College entertained at dinner in the Library of the College a distinguished gathering which included Mr. Arthur Greenwood (Minister of Health), Viscount Knutsford, Lord Atkin, the Dean of Westminster, Sir John Anderson, Mr. Justice Hawke, Sir Bannister Fletcher (President of the Royal Institute of British Architects), Sir Arthur Robinson (First Secretary of the Ministry of Health), Mr. Nathaniel Micklem (Treasurer of Lincoln's Inn), Sir David Murray (Prime Warden of the Fishmongers' Company), the Masters of the Drapers', Skinners', Haberdashers' and Apothecaries' Companies, Sir Walter Fletcher, Sir Farquhar Buzzard, Sir Humphry Rolleston, Surg-Vice-Admiral A. Gaskell, Air Vice-Marshal D. Munro, Sir P. Chalmers Mitchell, and Sir Frederic Hallett. The following Members of the Council of the College were also present:—

Mr. C. H. Fagge and Mr. V. Warren Low (Vice-Presidents), Sir Holburt Waring, Sir John Lynn-Thomas, Mr. Ernest W. Hey Groves, Sir Cuthbert Wallace, Mr. F. J. Steward, Mr. R. P. Rowlands, Mr. J. Herbert Fisher, Mr. W. Sampson Handley, Sir Percy Sargent, Mr. G. E. Gask, Mr. W. McAdam Eccles, Mr. Wilfred Trotter, Mr. A. H. Burgess, Mr. Victor Bonney, Mr. G. Grey Turner, Mr. Hugh Lett, Mr. R. G. Hogarth, Mr. R. E. Kelly, and Mr. Graham Simpson, with Sir D'Arcy Power (Honorary Librarian) and Mr. S. Forrest Cowell (Secretary).

Lord Moynihan who presided, in bidding the guests welcome on that evening for their social and academic distinction, offered them the permanent hospitality of the Museum below, should they attain equal distinction in a pathological sense—the gift of true immortality, he called it. He alluded in a few but weighty words to the outstanding need of a centre in London for post-graduate teaching and to the great opportunities for public medicine which were inherent in the provisions of the Local Government Act. Mr. Greenwood, in replying for the guests, said he shared the desire to see such a post-graduate centre an accomplished fact at an early date. London, he remarked, ought to be the greatest home of post-graduate research. Lord Atkin, who admitted frankly as a lawyer "we lag behind you at certain stages," contended with equal frankness that this lag had been unquestionably good for humanity. He laid stress on the importance of medico-legal subjects and put in a plea for a post-graduate institute of medico-legal knowledge. Prof. Thomas Loveday, Vice-Chancellor of Bristol University, in proposing "The Hunterian Orator," spoke of Prof. Groves as a true son of the West country, with distinction both as surgeon and teacher. After dinner the guests scattered to other parts of the College, many of them to the Hunterian Museum which had just been described by the President as the greatest monument ever erected to the honour of a man by himself in his own lifetime.

A NEW DURHAM COUNTY HOSPITAL.—The Durham County Council and its Public Assistance Committee have decided to build a large central hospital for medical and surgical cases.

ST. BARTHOLOMEW'S HOSPITAL "LIGHTHOUSE."—The beacon light which has been placed on the roof of St. Bartholomew's Hospital to call attention to its appeal for a million of money for rebuilding and re-equipment, has been raised 30 feet higher, that its beams may be seen at a greater distance. It has been arranged that very shortly the hospital shall be open free, by ticket, to the public on five occasions for the entire 24 hours. On March 11th and succeeding evenings "The Acts of Rahere," a play illustrative of the life of the founder of the hospital, will be performed in the church of St. Bartholomew the Great.

Correspondence.

"Audi alteram partem."

THE CASE AGAINST THE WIDAL TEST.

To the Editor of THE LANCET.

SIR,—Will you kindly allow me to make some remarks on your leading article under this heading of Feb. 1st? First, I feel that the statement, which you quote, that "the whole enteric group can be differentiated in one dilution without titration of the serums," may have unfortunate effects. May I point out to your readers that the majority of experts do not agree with the statement quoted? For myself, while I admit that the enteric fevers can *usually* (under present conditions) be identified in a single dilution, I hold that in an important minority of cases the additional information gained by titration is indispensable. A good deal more evidence must, in my opinion, be produced in its support before pathologists will be justified in taking what might be termed a retrograde step. The single-dilution method of agglutination, though commonly practised in the infancy of the Widal test, was discarded in favour of a completer titration when experience had been gained of the limitations and pitfalls of the simpler method. In the same way the living culture, a risky and unreliable weapon in all but highly experienced hands, gave way to sterile and standardised suspensions of well-tested properties. Now it is the advent of the "O" type of test that has given the impetus to this movement. "Qualitative receptor analysis" (I do not like either "receptor" or "analysis"), as you have explained, means simply the addition of the "O" test, and the abandonment of the quantitative method.

The new school holds that since the serum of inoculated persons contains no "O" agglutinins, the mere detection of "O" agglutination is diagnostic of infection. This is but a partial truth. Actually the present type of inoculation normally gives rise to titres of "O" agglutination running up to 1 in 200 or 1 in 500 (I have seen traces at 1 in 1000 soon after the second dose), which do not take long to sink below the level (about 1 in 100) of the single dilution recommended for the qualitative test. Thus the residual titre seldom, if ever, interferes with diagnosis in persons whose inoculation is not very recent. But how long will present conditions continue? I have little doubt that in the near future vaccines will be so prepared as to induce as high and permanent an "O" titre as is at present induced for "H." In that case the whole basis of the "qualitative receptor analysis" will crumble, and we shall again be left, as we were in 1914, with serial quantitative measurements as our sole means of establishing a diagnosis in inoculated persons. It is, however, alleged that this latter system is completely vitiated by the "anamnestic reaction," which means that infections other than enteric can cause large rises of the residual titre due to inoculation, and that diagnosis is therefore impossible. Now I submit, Sir, that the importance of the "anamnestic reaction" is very uncertain. True, it has been proved that large rises *can* occur. But there is no evidence that they do so often; indeed, it has definitely been shown that they are rare. This, then, though an important occasional limitation of the method of serial titrations, does not by any means destroy its utility. A high degree of probability in a positive serological result is very useful, even if it contains an element of uncertainty. On the negative side, the value of the method remains undiminished. It is true that serial titrations of "H" agglutinins often fail to distinguish between typhoid and paratyphoid B in triple inoculated persons. But a diagnosis of enteric group infection is of great value. No more than this, indeed, is claimed for "qualitative receptor analysis," when applied to the inoculated.

Quite apart from serial titrations, to deprive oneself of the power of distinguishing between a serum of titre 1 in 100 and another of 1 in 5000 is to limit one's power of diagnosis. For instance, high "H" titres are caused by the specific infection in persons inoculated so long ago that their residual titre has inevitably fallen to quite a low figure—a valuable diagnostic point.

There are other uses for titration. We may find no "H" or "O" agglutination at 1 in 25 at our first test of an uninoculated person, but four or five days later a complete reaction with one or the other suspension at 1 in 50. These two tests together are sufficient for a diagnosis, assuming that standardised suspensions are used. Suppose we had only tried a single 1 in 100 dilution on both occasions? A review of my own records shows me not a few cases in which I should have missed a low-titre provisional diagnosis (subsequently confirmed) if I had not put up 1 in 25 and 1 in 50 dilutions.

Perhaps some laboratories are really unable to cope with the full titration of many suspensions. If so, and if more labour is unobtainable, there are ways of saving time without loss of efficiency. For instance, in some circumstances two or three suspensions may be mixed together. If the result is negative, much labour is saved. Again, a partial titration can be done with two dilutions, as I have recently suggested. This corrects some, though not all of the weaknesses of the single-dilution method. In negative cases time is saved, while positives can, if desired, be further titrated.

I will conclude with two minor points of the many that I should like to discuss. I do not believe that the strain *B. typhosus* 901 is at all unique. There is no difficulty in finding any number of typhoid strains that make excellent "O" suspensions. It is true that the only existing (so far as I know) stable pure "O" culture was obtained by Dr. Felix by accident from that strain—but we shall doubtless get others. Finally, your article suggests (accidentally, I think) that the diagnosis in the case published by Hobson, Stenhouse, and myself in your issue of Jan. 25th was made with a living suspension, whereas it was made with a formolised broth standardised suspension of the "O" strain just mentioned, and checked with an alcohol-treated suspension of the same bacillus.

I hope, Sir, that I have said enough to convey a warning against a hasty and uncritical abandonment of the quantitative method. Every bacteriologist who is in doubt will be able to form his own opinion on the matter if he will continue to titrate, use "O" suspensions (*B. typhosus*), in addition to the usual "H," and see whether, in an adequate series of cases, any one of his dilutions would have given all the results obtainable by titration. I should like to add that the Standards Laboratory at Oxford is about to issue a completely modernised leaflet of Directions for diagnostic agglutination tests.

I am, Sir, yours faithfully,

Oxford, Feb. 13th, 1930. A. D. GARDNER.

THE MEMBERS AND THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editor of THE LANCET.

SIR,—Following the encouragement which those of us who are responsible for a direct move to obtain representation upon the Council of the Members of the Royal College of Surgeons of England have recently met with, we have received promises that should enable us soon to invite from the Members themselves a material expression of their adherence.

On Friday last Prof. Hey Groves, in the Hunterian Oration, referred in generous and valuable terms to our movement. He pointed out that for over 30 years the governing body of the College had been requested to consider the situation, and alluded to the phase of amity and good temper which at last

marks the discussion of the question at the annual meeting of Fellows and Members. But he went on to point out that, unless a substantial number of the 18,000 Members record their view that the reform is desired, the Council of the College may well decline to believe that the modern and democratic aspect need be adopted. "The chief thing," said Prof. Hey Groves, "which is needed to bring this about quickly is convincing evidence that the change is desired by the great body of the Members."

A circularising of the Members will shortly take place, and it is earnestly hoped that replies will be received from a substantial number—why should it not be signed by them all?

As was mentioned in a previous communication, the sum—a very small one when the number of those interested is remembered—of £250 is required to defray the cost of the circular. A certain proportion of this sum has already been received, but our treasurer, Dr. K. Barrett, 102, Church-street, London, S.W.8, will gladly receive and acknowledge further contributions, which are needed.

I am, Sir, yours faithfully,
ERNEST E. WARE.

Welbeck-street, W., Feb. 17th, 1930.

LARYNGEAL PAPILLOMA FOLLOWING GASSING.

To the Editor of THE LANCET.

SIR,—I have been invited to collate papillary granuloma of the larynx, or cases of a similar nature, with a history of exposure to mustard or other irritant gas, for presentation at the summer meeting of the Laryngological Section of the Royal Society of Medicine. The points of note appear to be:—

1. Signs and symptoms, clinical appearances.
2. Date of exposure to gas; nature of latter.
3. Latent period, if any.
4. Operative measures; exact site of granuloma; pathological report.
5. Exclusion of syphilis/tubercle; ? blood or sputum examination.
6. Subsequent history.

I should be very grateful if any of your readers will supply me with notes of cases of this seemingly somewhat rare condition that they have seen. Illustrations, microscopic slides, and (of course) personal presentation of notes at the meeting will be especially welcome. References to published cases, or to occurrence apart from war service, will be valued. Any communication should be addressed to me at the Royal Infirmary, Bristol.

I am, Sir, yours faithfully,
E. WATSON-WILLIAMS.

12, Victoria-square, Clifton, Bristol, Feb. 13th, 1930.

REST IN THE TREATMENT OF GONORRHŒA.

To the Editor of THE LANCET.

SIR,—Dr. Spence's instructive article in your issue of Jan. 4th clearly emphasises the virulency of the gonococcus and the potential mischief of which it is capable. This devastating microbe, of course, invades the male via the meatus, and then enters the anterior urethra, creating intense surface inflammation, but at the same time insinuating itself by division down every microscopic gland of the mucosa. No other microbe is capable of raising such a "bonfire" of inflammation, so that once implanted its presence should, under no circumstances, be deemed of trivial account, lest some of those who have not had occasion intimately to study the habits of this particular microbe should be led into taking a light view of the situation at the only period when one may prevent extension backwards beyond the compressor urethræ.

To accomplish this very desirable result, and even to give a reasonable chance of its being achieved, the patient should be told—just as positively and emphatically as in the case of, say, an acute antrum—that he should go to bed and lie up, and it should be explained to him that without this all-essential element of complete rest, it is quite impossible to hold out the hope of a cure within a reasonable period; still less that he should escape serious complications, even though the newest and most infallible of irrigations be diligently employed. This necessity for rest in bed is even now too little insisted upon, because of the still persisting taboo, disgrace, and secrecy under which all venereal complaints had to be treated in the old days. Nowadays, when thanks to propaganda, leaflets, &c., these same complaints are a subject of ordinary conversation in mixed companies, the onus of refusing to lie up must be put on the unhappy victim of the complaint, and it must be explained to him that his refusal to do so only means that he runs the risk of the many and serious complications which surround the activities of the gonococcus.

By means of real rest, physical and dietetic, half at least of the very serious complications whose treatment is so ably described by Dr. Spence would and could be altogether avoided.

I am, Sir, yours faithfully,
JAMES B. BYLES, M.B. Lond.

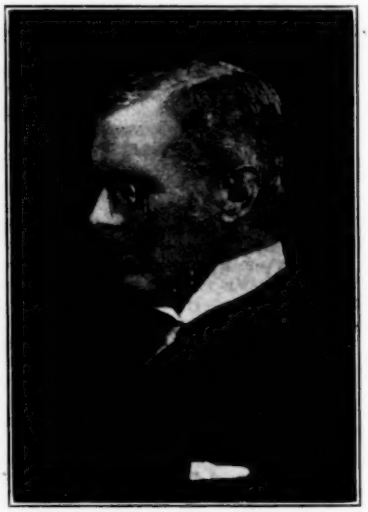
St. James's-place, S.W., Jan. 7th, 1930.

Obituary.

JAMIESON BOYD HURRY, M.D. CAMB.

THE name of Dr. J. B. Hurry, who died on Feb. 13th, at the age of 72, has long been familiar to the profession by his books on "vicious circles." He was a man of wide interests, and had a faculty for communicating them to his fellows. The town of Reading, where he practised as a physician, was perhaps the greatest gainer by his enthusiasm and generosity, but as doctor, archæologist, and botanist he formed an important link of many *circuli virtuosi* which spread far beyond his own acquaintance.

Son of the Rev. Nicholas Hurry, of Liverpool, Jamieson Boyd Hurry was educated successively at Neuchâtel, in Switzerland, the City of London School, St. John's College, Cambridge, and St. Bartholomew's Hospital, London, where he was resident obstetric physician under Matthews Duncan. After qualifying in 1882, he travelled for a year as ship's surgeon, visiting South America, Australia, and India, and thus laid the foundation of an intense love of travel which he was able to gratify in later years by tours in various parts of the world, including North and South America, Egypt, Morocco, and almost every European country. By these means he acquired an interest in continental medical schools, in international



DR. J. B. HURRY.

[*Photograph by Elliott & Fry.*

social questions, and especially in tropical and economic botany. In 1885 he became partner of the late Mr. George May, of Reading, where a long and active professional life extending over 40 years was spent. During this period he was a keen member of the Reading Pathological Society, and became deeply impressed with the social and professional value of medical societies, in evidence of which he published "A History of the Reading Pathological Society," and afterwards "The Ideals and Organisation of a Medical Society," which has been in wide request by the officers of medical societies at home and abroad. It was not until 1911 that he produced the first of his classical monographs—namely, "Vicious Circles in Disease"—but the idea behind them proved so instructive that it was followed in succession by works on the vicious circle of neurasthenia, sociology, and poverty. The subject aroused keen interest abroad, as was shown by the various foreign translations; the first book appeared in French, Spanish, and Italian, and "Vicious Circles in Poverty" was translated into Chinese, Japanese, French, Spanish, and Italian. These books have undoubtedly done a great deal to draw attention to the importance of the "circular process"—a process which every clinician and every politician must recognise with profit.

At Reading Dr. Hurry became the historian of the Abbey, and took much interest in the preservation of the ruins. During later years he devoted a good deal of time to yet another hobby, economic botany, and established an educational garden at his home at Reading, where were assembled from all parts of the world numerous tropical and economic plants, more especially such as yield food, fibre, dyes, or medicines for the service of man, tender plants being housed in a series of hot-houses. Close by was established a museum in which were exhibited many of the products derived from the plants growing in the garden and conservatories. By this means the plant and its economic product could be studied side by side, and this practical method of studying economic botany attracted large numbers of visitors from far and near. In 1926, owing to impaired health, Dr. Hurry retired from practice and moved with his family to Bournemouth. The collection of tropical and economic plants from Reading was presented to the Corporation of Bournemouth, which has housed them in the King's Park Nurseries at Boscombe. Even in his retirement his pen was never idle, and he published a volume entitled "Imhotep, the Vizier and Physician of King Zoser, and afterwards the Egyptian Deity of Medicine," of which a second enlarged edition appeared in 1928. At the time of his death he was engaged in writing a volume on "Woad," which will shortly be published.

Dr. Hurry married Gertrude, the daughter of Arthur Hill and a niece of Miss Octavia Hill. He leaves a son and a daughter.

ENLARGEMENT OF BECKETT HOSPITAL, BARNSLEY.—Lady Sutherland last week opened a casualty and out-patients' department at this hospital for which the claim is made that it is "the finest in the provinces." The new building, which is of two storeys, and is structurally connected with the hospital, comprises medical and surgical units, dispensary, casualty receiving and dressing rooms, a radiographic unit, massage, ophthalmic, dental, and other departments. The area Miners' Welfare Fund granted £22,000 towards the cost, the Barnsley British Co-operative Society gave £1500 and the X ray apparatus.

HOSPITALS IN EAST AFRICA.—In a debate on Colonial policy in the House of Commons on Dec. 11th, Mr. Marley said that he was informed that there was only one native hospital in the whole of the East African territories. Writing in the *Times* from Nairobi, Dr. James H. Sequeira points out that in Kenya alone there are 18 Government native hospitals with 1371 beds, with 64 dispensaries attached to them, and that five new hospitals will be in commission by the end of the present year. In 1928 21,236 in-patients and 186,545 out-patients were attended in these institutions, and, in addition, 300,000 patients were attended at out stations and by medical officers on tour.

Medical News.

UNIVERSITY OF OXFORD.—On Feb. 15th the following degrees were conferred:—

B.M.—R. S. B. Pearson and J. K. Marshall.

UNIVERSITY OF LONDON.—At a meeting of the Senate on Jan. 29th it was resolved that the subject of the essay or dissertation for the Rogers Prize for 1931 should be Filtrable Viruses as a Cause of Disease in Man.

The University Medal at the M.D. Examination (Branch I, Medicine), December 1929, has been awarded to Cyril Francis Fernando, of University College Hospital.

The Senate will shortly consider applications for grants from the Thomas Smythe Hughes and Beaverbrook medical research fund. Particulars may be had from the Academic Registrar.

The election of Beit Fellows will take place about July 15th, not more than three Fellowships, of £250 per annum, being awarded for scientific research. Information may be had, by letter, from the Rector of the University.

University College.—A course of four lectures on Chemistry of Muscle in Relation to Problems of Cellular Physiology will be given at the College by Prof. Otto Meyerhof, of Heidelberg, at 5.15 P.M., on March 6th, 7th, 10th, and 12th. Prof. A. V. Hill, F.R.S., will take the chair at the first lecture.

MEDICO-LEGAL SOCIETY.—A joint discussion with the West London Medico-Chirurgical Society will be held at 11, Chandos-street, Cavendish-square, W., at 8.30 P.M., on Friday, March 7th. Lord Riddell, President of the Medico-Legal Society, will open a discussion on the Doctor in the Law Courts, and among the speakers will be Sir William Willcox and Dr. F. Temple Grey.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL. Prof. E. B. Verney will deliver the Eighth Biennial Sydney Ringer memorial lecture at this School on Monday, March 17th, at 5 P.M. His subject will be the Reserve Forces of the Kidney.

UNIVERSITY COLLEGE HOSPITAL.—At 3.30 P.M. on Wednesday, March 19th, Prince George will open the new Preliminary Training School for Nurses, which has been presented by the Rockefeller Foundation.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A meeting of the Council was held on Feb. 13th, with Lord Moynihan, the President, in the chair.

The Honorary Medal of the College was awarded to Prof. Grafton Elliot Smith, F.R.S., in appreciation of his services to the Museum.—Mr. Victor Bonney was re-elected the representative of the College on the Central Midwives Board, and Mr. R. E. Kelly was re-elected a Member of the Court of the University of Liverpool.—Mr. J. Herbert Fisher was appointed Bradshaw Lecturer for the ensuing year.—It was reported that Sir Arthur Keith's Hunterian Lectures would be given on May 5th, 7th, 9th, 12th, 14th, and 16th.

The Fellowship of the College was conferred on Mr. G. C. Dorling, of London Hospital, and the Membership on 135 of the candidates whose names were given in our issue of Feb. 8th (p. 326) as recipients of the L.R.C.P., excepting Rosa E. Chamings, R. S. Cornell, A. N. Duggal, A. H. Gurney, E. Marks, H. P. Nelson, and Alison J. Rae. It was also conferred on C. C. Bryson, Cambridge and Middlesex, and S. Scher, Cape Town and University College.

Diplomas in Public Health were granted jointly with the Royal College of Physicians to the 41 candidates whose names were given on Feb. 8th.

It was announced that the Evening Reception at the College in connexion with the Jubilee celebrations of the Ophthalmological Society of the United Kingdom would be held on April 3rd.

It was reported that Mackenzie Mackinnon Research Fellowships had been awarded to Dr. Thomas Cecil Hunt for research on duodenal catheterisation, and to Dr. George Scott Williamson for research on the study of diseases of thyroid, thymus and lymphatic tissues.

The President stated that an election of three Fellows into the Council would take place on Thursday, July 3rd, at 11 A.M., in the vacancies occasioned by the retirement in rotation of Mr. R. P. Rowlands, Sir Percy Sargent, and Mr. Victor Bonney; that notice of the election would be given to the Fellows by advertisement and by circular on March 7th; that March 17th would be the last day for the nomination of candidates; and that a voting paper would be sent on April 1st to every Fellow of the College whose address is registered at the College.

Mr. Norman Lockhart Joynt, M.C., M.B., B.Ch. N.U.I. (Medical Officer), has been appointed by the King an Official Member of the Executive Council of the Presidency of the Virgin Islands.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—A meeting will be held on Feb. 25th, at 8.30 P.M., at the British Medical Association House, when Dr. Francillon Lobre, chargé de la Consultation de Gynécologie de la Salpêtrière, Paris, will speak in English on the Treatment of Sterility. The lecture will be illustrated by lantern slides, and is open to all medical men and women.

HUNTERIAN SOCIETY.—This society held a banquet at the May Fair Hotel on Feb. 13th to celebrate the 202nd anniversary of the birth of John Hunter, whose memory was honoured in a silent toast by more than 200 guests. Lord Riddell, proposing the health of the society, recalled Hunter's saying: "Never ask me what I have said or written, ask me what is my opinion to-day." Dr. Ernest Young, the president, said that the society, founded in 1819, had, in common with other similar bodies, become sadly depleted during the late war, but owing largely to the energy and enthusiasm of Dr. Fortescue Fox, Mr. A. E. Mortimer Woolf, and Dr. Arthur Westerman, had since grown rapidly, and now had a membership of over 350. Dr. Young attributed the present success of the society in no small degree to the practice of holding dinner-meetings. Dr. Hopewell Ash proposed the health of the Lord Mayor of London, who was present with the Lady Mayoress, and Sir William Waterlow replied. The toast of the Guests was proposed by Mr. Ivor Back, and responded to by Sir StClair Thomson, who remarked on the large number of non-medical guests present, and said that it emphasised the fact that doctors had many interests outside their profession. Mr. Justice McCardie referred to the common aims of medicine and law, and pointed out that fame often came to a doctor or a lawyer after his death, the fame of John Hunter being greater now than in his lifetime. The past was secure, but the future was largely what we might choose to make it. Surgeon Vice-Admiral Gaskell, Director of the Royal Naval Medical Service, recalled that John Hunter had served as an army doctor, but had not served afloat. The reason might be found in his protest: "For God's sake don't send me to sea, as the sea plays the very devil with me!" But, no doubt, he would soon have got over this stage.

ROYAL LONDON OPHTHALMIC (MOORFIELDS) HOSPITAL.—The annual dinner of past and present students of this hospital took place at the Langham Hotel on Feb. 13th, Mr. J. Herbert Fisher presiding. Over 70 persons were present, including Lord Moynihan, Sir John Rose Bradford, Sir Walter Fletcher, Sir William Lister, Sir John Parsons, Mr. Luling (Chairman of the Hospital), Mr. Lawford, Mr. Traquair, Mr. Williamson-Noble (Editor of the *British Journal of Ophthalmology*), Prof. G. Elliot Smith, and Dr. A. M. H. Gray (Dean of University College Hospital Medical School). The toasts were in the hands of the Chairman, Lord Moynihan, Mr. Affleck Greeves, and Mr. Foster Moore.

The Dean (Mr. Charles Goulden) presented his report for the year 1928–29. The entry of students for 1927, he said, had been a record, 134 new students having joined the school in that year. These numbers coincided with an increase in the entry for the D.O.M.S. examination, and so were an index of an increased interest in the study of post-graduate ophthalmology. The year 1928–29 marked a return to normal numbers, 114 students being admitted, although no less than 204 were attending the practice of the hospital. Among the examination results during the year the successful candidate for the M.S. degree of the London University in ophthalmology was an old student, being the first to gain this distinction. At the D.O.M.S. examination of the Conjoint Board the hospital had had very satisfactory results. In the first part, of the 107 candidates Moorfields presented 42, and of the 60 who were successful 33 had attended the course at the hospital. In the second part, of 76 candidates 55 came from Moorfields, and of the 51 successful candidates 39 were students of the hospital. During the past year the school had lost by retirement the services of Sir William Lister, who, besides his work as a clinical teacher, had been a generous benefactor. Mr. R. C. Davenport had joined the staff.

The whole out-patients' department, said Mr. Goulden, was about to be enlarged and reorganised. Additional buildings had already been purchased for this purpose and when alterations were made there would be much better teaching arrangements and space would be gained for laboratories, library, and study rooms. The school was about to enter upon a new era with the improved out-patients' department. It was there that it had earned its reputation and it was there that the students pursued their work among clinical material that was probably unrivalled in the world.

RHEUMATISM CLINIC IN BERMONDSEY.—It is stated that a clinic for the treatment of rheumatic disorders is to be built by the Bermondsey Borough Council at a cost of £96,000.

ST. MARTIN'S ORTHOPÆDIC HOSPITAL.—The Bishop of London last week dedicated a new open-air ward at this hospital, at Pyrford, in Surrey, which belongs to the Church of England Waifs and Strays Society. The ward, which is open to the society, will accommodate 40 children.

WOOD'S HOSPITAL, GLOSSOP.—Difficulties having arisen which have culminated in the resignation of the matron, nurses, and domestic staff, the town council of Glossop have decided to form a medical board under which the new staff will be placed. The hospital, which was a gift to the town from the late Mrs. Wood, and was endowed by the Wood family, has recently been enlarged by the addition of a new operating theatre, by means of a grant from the estate of the late Mr. Edwin Ogden.

UNIVERSITY OF SYDNEY.—Dr. Charles George Lambie has been appointed to the Bosch Chair of Medicine in the University of Sydney, Australia.

Dr. Lambie, who is 38 years of age, is at present assistant physician to the Edinburgh Royal Infirmary and lecturer in clinical medicine in the University of Edinburgh. He graduated at Edinburgh in 1914 and held a captain's commission in the R.A.M.C. during the late war, being decorated with the Military Cross. His work at Edinburgh has been largely concerned with carbohydrate metabolism.

FEDERATION OF THE HEALTH RESORTS OF FRANCE. The Fourth Easter Medical Tour, organised by the Société Médicale du Littoral Méditerranéen will take place from April 12th to April 20th. It will include a visit to Nice, Juan-les-Pins, Cannes, Grasse, Vence, Mentone, Bordighera, San-Remo, and Monte Carlo. A five days' tour from Nice to Corsica will follow immediately. Bastia, the Cap Corse, Corte, Vizzavona, the Calanques de Piana, Ajaccio, will be visited. The tours are open to doctors, their families, and medical students. Further particulars can be obtained from Madame Juppé-Blaise, at the office of the Federation, Tavistock House (North), Tavistock-square, W.C.1.

AN OVERCROWDED POOR-LAW HOSPITAL.—At the meeting of the Southwark Board of Guardians last week the medical superintendent is said to have reported that "the whole hospital is grossly and dangerously overcrowded; that no more beds can be erected in the wards, and that if the admissions continue at the same rate (112 in the week reported upon) patients will have to sleep on the day-room floor.

VILLAGE SETTLEMENTS FOR TUBERCULOUS MEN.—The Minister of Health received early this week a deputation from the British Legion on the subject of these village settlements. The Minister of Pensions was unable to be present. The deputation, which was introduced by Colonel Crosfield, chairman of the Legion, included Sir Frederick Maurice, Dr. J. B. McDougall, and Dr. Spencer Palmer, gave an account of the success of work carried on at Preston Hall, and quoted statistics to show that its economic results had been encouraging. The Minister said he had taken a live interest in the village settlement movement, and recognised that Papworth and Preston Hall had blazed the trail. He hoped that local authorities, with the greater freedom they would enjoy under the Local Government Act, would devote attention to the subject; he was, he added, making inquiries as to areas in which the development might be possible. On the question of Government assistance, he reminded the deputation of the existing housing and other grants now available.

RESIGNATION OF MR. H. A. LEDIARD.—At a meeting of the governors and subscribers of the Cumberland Infirmary, held at the Town Hall, Carlisle, on Feb. 8th, the resignation of Mr. H. A. Lediard, after 50 years' service as surgeon to the institution, was accepted with regret, and in recognition of his long and distinguished services he was elected honorary consulting surgeon and an honorary vice-president. Many tributes to his work in connexion with the infirmary were paid by lay members in the meeting. Mr. R. C. Chance, the mayor, remarking that he did not think there was anyone in Carlisle who was held in more general respect and affection. Mr. Norman Maclaren, on behalf of the staff of the infirmary, said they were proud of the example that Mr. Lediard had always set them, and of the standard of his work during the past half a century, a period contemporary with the developments of modern surgery, and it was significant that Mr. Lediard, who was a graduate of Edinburgh, qualified just at the period when Lister was formulating the principles which led up to modern surgery. Mr. J. N. J. Hartley and Mr. A. J. Caird also spoke on behalf of the staff. Mr. Lediard, who was present with Mrs. Lediard, briefly replied.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

MENTAL TREATMENT BILL.

On Monday, Feb. 17th, Mr. GREENWOOD, Minister of Health, moved the second reading of the Mental Treatment Bill, which has already passed through the House of Lords. He invited the coöperation of all sections of the House in passing a measure which did not involve narrow party political considerations. He referred to the unfortunate position of people wandering in the "no man's land" between sanity and insanity, and of persons temporarily deranged, who through lack of early care or inadequate care were plunged into permanent insanity, and he said that anything which the House could do to deal with the problem and to popularise a new conception of mental disease it ought to do. The Bill sought to carry into law the less controversial proposals of the report of the Royal Commission on Lunacy appointed five years ago, and to deal particularly with urgently needed reforms. The discussions which had taken place in the House of Lords led him to believe that essentially the Bill could be treated on a non-party basis. In the House of Lords certain amendments were made, and in the House of Commons the Government would be willing to consider sympathetically amendments which would improve the measure, and were not inconsistent with its main principles. The main emphasis of the report of the Royal Commission was upon the need of a new conception of mental disorder and its treatment. Emphasis was laid on the view that there should be early treatment, and that mental disease should be viewed much in the same way as they now viewed physical disease. The Bill made provision for two categories of people, those who recognised the instability of their condition and realised the desirability of taking early preventive measures, and those who were no longer able to realise their condition, and who, nevertheless, might be curable, but who ought to receive treatment different from that of the certified lunatic. At present in England and Wales, voluntary boarders could only be received in certain institutions, in licensed houses and registered hospitals under the Lunacy Act, and only in two public institutions where, as a result of special legislation, it was possible for voluntary boarders to be accommodated—the Maudsley Hospital and the London County Council and City of London Mental Hospital at Dartford.

Accommodation for Poor Patients.

It followed from that, that with very few exceptions treatment of the voluntary boarder was available only for people who were fortunate enough to be able to pay the fees for entering those places. That, obviously, in these days, could not be defended. There were no free beds in the licensed houses; there were 14 only of them, with 4700 beds. The bulk of the public hospitals were not entitled to take in voluntary boarders; and the result was that a vast number of people for whom treatment as voluntary patients would be desirable were debarred from receiving that treatment. Of the 115,000 places in mental institutions, none were available for persons who wanted to enter in the first stage. There were places which were only for those people who went in with the badge of the certified lunatic, and the object of the first four Clauses of the Bill was to make more extended provision for the voluntary boarder, and to provide that such boarders might be received into the other types of public institution whose doors to-day were closed against them. To get a coherent and logical code with regard to voluntary patients, opportunity had been taken to repeal certain of the existing provisions, and re-enact them, and bring them together in the first four clauses. In cases of this kind, although in most instances the individual went in of his own free will, there must be some measure of protection. The real distinction between physical and mental disease—even that distinction might, at times, be blurred—was that in the case of mental disease the will of the individual did not consciously operate. It was necessary, therefore, to have some measure of protection in the interests of the people who entered these institutions. While provision was made to permit a person of less than adult years to become a voluntary boarder on the application of a parent or guardian, safeguards had been introduced requiring the support of definite medical evidence as to the desirability of the young person undergoing treatment, and provision had been made for the intervention of the central authority if the parent or guardian did not appear to be carrying out his duty after the minor had been placed in the care of the institution.

The Problem of Release of the Patient.

The next problem of the voluntary boarder was as to his release. It was quite clear that if a person voluntarily entered an institution for treatment, he could not be permitted to leave exactly when he liked. As the law stood now, a notice of 24 hours was required; in the Bill it was proposed that 72 hours' notice should be given. That was not because anybody desired to retain people against their will, but in order that there should be sufficient time to communicate with the friends or relatives of the patients, and make effective arrangements for their care when released. It would be generally agreed so far that the Government were going on the right lines in opening more doors for voluntary treatment. In Clause 5 where a certain amount of doubt had been expressed, they were dealing with the person who had gone a little too far to appreciate that he was a victim of incipient mental disorder, and who, while not being a resistant type of case which called for certification, ought to have received some method of treatment. The cases he had in mind under Clause 5 were those like that of a man whose mind had been temporarily broken by overwork, or the woman in childbed who suffered from puerperal mania; cases where with proper treatment fairly early recovery might reasonably be expected. To-day, the moment that a person's mind became temporarily unhinged he was not only branded with the stigma of the poor-law, but of certification. The stigma of certification was a real thing, which had kept from proper institutional treatment many people who might well have benefited from it. He was not sure that in many working-class homes to-day, the stigma of judicial certification did not stab deeper than the stigma of the poor-law. It was essential, if they were to do any justice to people who, in the months to come, would be as normal as the rest of their fellows, that something should be done to get for them proper adequate treatment without putting on them the brand of certification. It raised a very large and difficult question. They knew that a substantial proportion of people who entered institutions, duly certified, were people who did recover. In the report of the Royal Commission, a number of statistics were quoted in regard to various mental hospitals, and showing that quite a substantial proportion of people who entered the poor-law mental institutions were released in a relatively short space of time. One of the best instances, because the figures covered four years, was that of the Claybury Mental Hospital, where, out of 792 recoveries of sanity, 11 patients recovered within the first and second months; 49 between the second and third; 71 between the third and the fourth; 76 between the fourth and fifth; and 83 between the fifth and sixth months. In other words, over one quarter of those recoveries took place within six months. It was proposed that, subject to safeguards, these people should be subjected to a period of treatment not exceeding six months. In the case he had quoted, over one-fourth of the people who recovered in the asylum would, under Clause 5, never have had to undergo periodical certification. It was clear that if they had more early treatment of this kind, more cases would recover. Even at the end of six months they were not justified in condemning the patients who still remained to certification. It was, therefore, provided that there should be a continuance of the treatment for a further period, not exceeding six months. Here the Government had departed from the recommendations of the Royal Commission. This was done after very mature consideration. The Royal Commission, being anxious to differentiate cases which should be certified from those which need not be certified in the first instance, cast about for a procedure which would be different from certification. They devised the plan of a provisional treatment order, and they proposed, "with reluctance," that the order should be signed by a magistrate, though it was clear from the general tenor of their report that they would be glad to get away from judicial interference. When the Government came to work out what the provisional treatment order would be, it was clear that to the ordinary mind it could not have been indistinguished from ordinary certification. He felt this so strongly that if the principle in Clause 5, as it now stood, was destroyed, the heart would have gone out of the Bill. They ought to devise machinery which was distinguishable from certification, and that was the whole point of the Clause—to get treatment for the non-volitional case without having to resort to the intervention of the magistrate, with all that that meant. But there must be safeguards, and a number had been inserted which he thought would be an adequate protection. First there must be two medical recommendations to support the application, made on behalf of the non-volitional patient, one signed by a medical practitioner specially approved by the State, and the other, if practicable, by the usual medical attendant of the patient.

Arrangements were made under Clause 5 for fairly frequent visitations and, in addition, there would be the periodical visitation of the central authority itself. It was already

laid down that a patient must be discharged in any case within 28 days of recovery of volition. What they had tried sincerely to do was to protect the individual and at the same time not to introduce the process that was commonly associated with entering into a mental institution. He believed that this clause would mark a great advance in the treatment of incipient mental disorder, but he was equally sure that the intervention of the magistrate in these cases would destroy the whole value of the clause. If they condemned these people to certification they would not get the early treatment that was desired, and one of the main purposes of the Bill would have been defeated. A large body of public opinion was prepared to support this measure and get rid of what had been called the stigma of judicial interference. He might claim that in this matter they had the vast majority of the medical profession behind them. Lord Dawson had spoken warmly in support of the Bill. It was significant that when, in the House of Lords, an effort was made to introduce intervention of the magistrates, two of the law lords opposed that view and supported the Bill. Other clauses dealt with provisions regarding local authorities. Their powers and duties were enlarged and they were enabled to do more in the way of facilities for treatment. They were also given power to provide out-patients clinics, to undertake after-care, and to undertake research. These powers were subject to the approval of the Board of Control and were so drawn on the specific recommendation of the Royal Commission. Objection had been taken to making this a new duty, but it was not so much a new duty as the application of an old duty in a different way. If they modified the law with regard to local authorities, they ought to modify the law with regard to the central authority, and the whole point of the reorganisation clauses was to re-establish the Board of Control on a new basis, with a closer contact with the local authorities and with the procedure and method of administration assimilated to that which was followed now in the Ministry of Health itself. The whole desire behind these proposed alterations in the Board of Control was to adapt that central machinery to the rapidly developing work within the sphere of the Board. It had been stated that the Board of Control was a Star Chamber which was not within the jurisdiction of the House, but nothing could be more untrue. Parliament would have the final say in the matter of the detailed administrative rules. The Royal Commission desired a complete overhaul of the lunacy administration. That had not been possible, but it had been possible to dissociate people suffering from mental disease from the poor-law.

The Practitioner's Peril.

The remaining clauses of the Bill dealt with one or two matters of importance. Clause 16 referred to the protection of medical practitioners who gave certificates under the Lunacy Acts. The position of the medical practitioner to-day was one of considerable uncertainty, indeed many of them thought it one of very real peril. The Royal Commission recognised it. To-day, if the medical practitioner was made defendant in a case for wrongful certification, the onus of proof rested upon him to show that he had acted in good faith and with reasonable care. He (Mr. GREENWOOD) thought it was clear that they could not completely remove responsibility from the medical man. After all, he had made a decision and, therefore, while they must keep upon him a certain measure of responsibility, it was important on the other hand that he should have reasonable protection against cases which might be brought, and which might mean his financial or professional ruin, even if the cases did not go against him. The clause in the Bill followed very closely the proposal made in the Royal Commission's report which was drafted in detail by the very eminent legal members of the Commission. As regarded the proposals of the Royal Commission about the assimilation of procedure, he thought it would have been admirable if it could have been done. But he was not sure that it could have been done very simply. On the other hand he was quite clear that it would make the Bill highly controversial, and his aim was to get a minimum of controversy in regard to the measure. It would also, perhaps, have been advisable to follow the report of the Royal Commission in regard to the licensed houses, but that too was a burning of the full of deep-seated differences of opinion. These matters, therefore, had been deliberately excluded from a Bill which was designed to meet an urgent need and to revolutionise the public mind in its attitude towards mental disease, and to provide early treatment for that disease. It was also designed to reorganise the administrative machinery so as to make the constructive proposals more nearly operative and more successful. He thought that the House would not find in the Bill any cause for blind difference of opinion. He hoped that the second reading would be carried so that it could go to a Standing Committee. In committee, every effort would be made to accept amendments which would really improve the measure, provided that they did not interfere with the principles on which it was based.

A Saner View of Insanity.

Sir KINGSLEY WOOD said that he welcomed the main provisions of the measure because he thought it represented a saner view of insanity. Provided that opportunities were given for the discussion of certain points, the Opposition hoped to be able to coöperate with the Government in the passage of the Bill. Speaking subject to what might be said by the medical Members of the House, he thought it might be said that mental illness was not being reduced in this country. The recovery-rate was not a particularly good one. There was an increasing number of persons suffering from temporary mental troubles due to the increasing speed and strain of life. He was glad to think that in many respects the old conceptions and unhappy methods concerning mental illness were disappearing, but they died hard. They were still in many respects manufacturing lunatics; the old idea of the hopelessness and helplessness of mental disease still prevailed in many quarters. There was still the stigma of lunacy harking back, no doubt, to the time when madmen were kept in chains and underground cellars. He thought that there were two grave defects in the present system. The first was that the present law undoubtedly placed many obstacles in the way of early diagnosis and early treatment; and secondly under present circumstances and the present law there was very little hope of recovery for many poor people in this country. The poorer patient must have reached the final stage before a mental hospital could receive him. He welcomed the proposals in the Bill with regard to what was called the voluntary boarder. He suggested that it might be possible to remove this class of patient altogether from the jurisdiction of the Board of Control, and by that means dissociate this kind of illness from lunacy. That might very well be discussed in committee. A good deal of importance was attached by eminent lawyers in the House of Lords to the fact that inasmuch as minors could be detained in homes of that character for a certain period at the request of parents, the Board of Control would cause the homes to be visited by commissioners, as some measure of protection. How far that protection was substantial could no doubt be considered when the Bill was in committee.

In Clause 5 provision was made for treatment without certification of persons "temporarily incapable of volition." That was a matter which ought to be carefully considered, to see whether every protection was afforded. For the first time an order was to be signed without what was called a judicial authority. If it were possible, subject to proper safeguards, to avoid certification, it ought to be done. Certification as a lunatic raised real apprehension and dread in the minds of large numbers: once a person has been so certified, even if he or she recovered, it followed them for the rest of their lives. He doubted, however, whether, from the point of view of the liberty of the subject, the intervention of a Justice of the Peace was any protection. The Justice of the Peace who did his duty seriously in that connexion would be in a most difficult position if he were confronted with certificates signed by competent medical men. If regard were had to the reports of the last two tribunals which have been set up by the House to consider the treatment of lunacy, cases of wrongful detention must be of the rarest occurrence, and ill-usage was not deliberately or systematically practised in the institutions. He placed a great deal of confidence in the Board of Control and its operations, and the fact that members of the Board could visit those institutions at any time was a considerable safeguard. He hoped that one result of the measure would be that the superintendents of those institutions would have more time to attend to their proper job and would be relieved of many duties which did not apply properly to them.

The provisions of the Bill which called for further consideration were those relating to the medical profession of the local authorities. He had a good deal of sympathy with the plea of many medical men that some further protection should be afforded them in the discharge of their duties under the Bill than its provisions provided. Additional responsibilities were placed on local authorities, and he had been asked by the London County Council to put forward on their behalf and on behalf of other local authorities, a claim for further financial assistance. The Bill was on the right lines, and the Opposition would be happy to assist in its passage.

"Voluntary Patients."

Dr. MORRIS-JONES said that 20 years' experience as a medical practitioner had convinced him more and more that there was a very urgent need for such a measure as this Bill. Mental disease in recent years had become more and more allied to physical disease, and after all the line of demarcation between the two was very thin. He welcomed Clauses 1 to 4 dealing with voluntary boarders. He would prefer the term "voluntary patients." He also welcomed Clause 5 which dealt with persons incapable of volition. It was, in his opinion, the crux of the measure and had been con-

siderably improved during the passage of the Bill through the House of Lords. It was reassuring to be told by the Minister of Health that he would be responsible for the Board of Control on all occasions. He would like to see a little more protection for the medical profession than that given in Clause 16.

Dr. ETHEL BENTHAM said she heartily welcomed this Bill which was a step in the beginning of a reform which had been overdue for many years. She had had 13 years' experience as a general practitioner, and had acted as a magistrate ever since women magistrates were first appointed, so that she had had considerable knowledge of this question. When in the interests of a patient she had had to go to the Board of Control she had found it human—when one could get at it. The mental patient needed to be protected, first of all against himself, and in many instances against his relatives; in her experience the relatives were the people from whom he most often needed to be protected. If it was laid down that in every case, pauper or otherwise, two medical opinions had to be obtained, then in her opinion a certificate of a justice of the peace was not much needed. The non-medical justice was at such a disadvantage in face of medical certificates that it was really better to have the opinion of two medical men. The re-christening of the Board of Control would be quite useful, but some steps must be taken to give an appeal to the Board and to bring about greater public confidence in that body. She thought that the number of three members was too limited. It would be necessary to have two doctors—one a man and the other a woman—on the Board, and she thought the membership should be enlarged to five.

A Supervisory Authority.

Dr. SOMERVILLE HASTINGS said that all who were interested in the early treatment of mental disease would welcome the Bill. There might be two opinions as to the exact status of the Board of Control, but such matters might very well be dealt with during the committee stage of the Bill. He would like to add to the list of the Board's functions a supervisory function in connexion with the treatment of cases suffering from mental disease. That function was a very right one. It might be necessary to alter the exact status of the Board of Control, but he felt very strongly that some supervisory authority would always be necessary in dealing with mental disease. There were two considerations in connexion with mental disease which required attention. The first was the question of what was best for the patient; what treatment ought to be given, and what could be done to increase the patient's comfort. Another important point was the protection of the public, the protection of the patient from himself, and the protection of the good name of the patient's family. To achieve this latter object some form of detention was necessary. He was associated with a hospital which treated early cases of mental disease, and their difficulty was that they had no power of detention at all. Therefore, their selection of cases was strictly limited, and they could not forcibly detain patients even when it was in their own interest and when they felt that they ought to be detained. He wished to lay stress more particularly on the possibility of the treatment and cure of mental disease. Not long ago mental disease was thought to be an act of God, but now they were learning more and more that something could be done to alleviate this disease, and sometimes to cure it. He had seen cases of severe insanity treated and cured by ordinary medical treatment, or by a relatively simple operation on the nose. Many of the patients at his hospital suffered from some other medical or surgical ailment that could be recognised when the patients were closely examined by physicians and surgeons accustomed to deal with those other affections and when those other conditions were treated the patients very often rapidly recovered. One great point in favour of this Bill was that it would allow public money to be spent on the treatment of early cases of mental disease which was now impossible.

There was a type of patient not dealt with in the Bill, but about whom it was important to say a word or two—the patient who did not know that he was insane, but thought everybody else was. These were the people whom it was desirable to consider at present. Sometimes they recovered, as had been shown by the Minister of Health, but when they ceased their anti-social behaviour their ego did not change. They did not believe that they were insane before, and when they recovered they did not believe that they had been insane. These were the people who wrote pamphlets and distributed them to Members of Parliament and tried to catch Members of Parliament in the outer lobby of the House. It was these people who tried to impress the public with the evils of asylum treatment and with the sins of the Board of Control. They had to recognise that a great many early cases of mental disease were curable, but it was necessary to have some power of detention in such cases and unless that power was obtained, not very much could be done. He was very interested to hear the Minister of Health say that the stigma of certification was a real thing. There was no question that that was the case, and the stigma of association with the certified was also a real thing. He would like to see further provisions in the Bill for the withdrawal of the voluntary boarders and those not capable of volition, as far as possible from association with the certified, and for bringing them into closer association with the treatment of ordinary medical and surgical diseases. If a clause could be inserted in the Bill encouraging the local authorities, or even compelling them to do this, it would be a very great help. Although there might be ways in which the Bill could be improved in the Committee, it made a very great advance in providing for the treatment of early mental disease.

The Bill Supported.

Captain GUNSTON congratulated the Minister of Health on introducing the Bill, which, he said, he wished had been more far-reaching. They ought to be grateful for the name of the Bill—"The Mental Treatment Bill,"—because it described so exactly what they were trying to do. There was some misconception in the country as to the difference between a mental deficient and a person mentally affected. The Bill did not deal with the mental deficient. Everyone would congratulate the Government on bringing in a measure which would enable the poor to get very early treatment and, in many cases, to be cured.

Mr. LOGAN, speaking as one who had had some experience of poor-law administration, supported the Bill. The passing of the old Boards of guardians, and the coming of the Public Assistance Committees was bringing in a new trend of thought and a new system into the management of the affairs of the nation. The Minister of Health should take into consideration the question of segregation. It was utterly impossible to deal with mental cases, whether certifiable or for temporary treatment, unless they were segregated. Without segregation, classification would be useless. Both were absolutely essential. Provision should also be made for classification of cases of senile decay, in addition to classification of temporary cases which were not chronic.

Mr. R. RUSSELL, in supporting the Bill, said that in Committee the whole question of the relationship between the local authorities and the Board of Control would come under very serious consideration, and would need some remodelling. The local authorities had built up these great institutions and had done magnificent work, but they were very much alarmed at the powers which were given to the Board of Control in regard to them. There was no doubt, also, that considerably increased expenditure would be placed upon the local authorities.

Dr. FORGAN said that he gladly joined in the chorus of praise of the Bill, though he would have to qualify it to some extent by calling attention to one or two defects. He would like to say what great benefit institutional treatment for voluntary boarders and the possibility of after-care treatment could be. The Bill did not apply to Scotland, for the very good reason that Scotland had its separate Board of Control, and a member of the Royal Commission had stated that the practice in Scotland showed an enormous advance upon that in England. In Scotland, those suffering from mental disorder were treated in a very flexible way, with enormously good results from the point of view of the health of the patient. The percentage of the population certified as insane was almost 20 lower than in England, and the different method of treatment might to some extent be responsible for that. He had had brought to his notice some time ago the case of a young man who had been unemployed for a considerable time, and fear of future unemployment became such an obsession that finally he had to be admitted to a poor-law institution where, after some months of doubt, not as a certified lunatic but as a voluntary boarder, he was restored to normal mental health and discharged. Then he had to face again the very trouble that had driven him into the mental institution—the fear of continued unemployment. It was only necessary to draw the attention of the local authority to the fact that he was up against the thing that had practically made him insane before, for the parish council to provide him with work. By means, first of all, of treatment, and afterwards by after-care, he was saved from what certainly would have been permanent insanity. He commended to the notice of the House the practice in Scotland, which apparently was considerably in advance of that in the South. As regarded the defects in the Bill, temporary patients were, in the opinion of those who had framed the measure, likely to be treated in the existing poor-law institutions, and many members of the public would think there was very little difference between a declaration signed by two doctors and certification, if the patient was then removed to an asylum. That emphasised the paramount importance of setting up other institutions for the treatment of early cases. But

the most important defect was the very serious additional financial burdens which would be placed on local authorities. Temporary patients were an entirely new class of patient. Fresh accommodation would be required for them, and fresh expense would be incurred by the authorities and, if the method of allowing non-volitional cases to remain for six months without certification was going to be effective at all, it would mean for some years an increase in the number of persons who would receive treatment and new accommodation would be required if the authorities were to put into effect the permissive powers which the Bill gave them. The Royal Commission declared that the Exchequer contributions to local authorities for work of this sort in the past were wholly inadequate, and they themselves were of opinion that an ad hoc grant was necessary if local authorities were to undertake the new duties. Local authorities were now faced with additional work, with their resources for further rating depleted by the De-Rating Act of the last Government. He was afraid, if this subsection was to remain permissive, that the great majority of the local authorities would be unable financially to undertake any work at all. The Bill, as it stood now, was not going to provide early treatment except for those who were able to pay for it. The history of lunacy reform had been a history of good intentions. In 1881, the Commissioners reported that for 40 years their efforts had been directed towards obtaining early treatment. That was 39 years ago, so that for almost 80 years the Commissioners had been attempting to obtain early treatment. Early treatment was the keynote of this Bill. He hoped that the Bill would have a unanimous second reading, and that at a later stage it would be so amended as to make it really capable of bringing about a praiseworthy reform.

Sir JOHN WITHERS, speaking as one who had had a good deal of experience in lunacy work, said that on the whole the Bill was extremely good. Clauses 1 to 4 were excellent, but he must refer to Clause 5. He had an old-fashioned dislike to doing away with the certificate of the magistrate. That had been, on the whole, a great safeguard. Under this Bill people could be put away in an asylum or home for a whole year without any legal certificate, and his feeling was that that was a mistake. He could see no reason for it. The idea that certification of itself was a stigma was a misconception. From the point of view of the patients themselves, certification was a protection. It protected the patient, the doctors, and the family. The expression "incapable of volition" would also have to be explained, and there ought to be some mode of appeal from the Board of Control.

Non-volitional Cases.

Lieut.-Colonel FREMANTLE said that they were dealing with the distressing cases which numbered already some 135,000 persons in mental institutions. Of these, it was estimated that about one-third were what were called in the Bill non-volitional cases. That was to say, from 40,000 to 50,000 were non-volitional cases. As had been said, the expense and necessity of providing for these people was already met. Therefore the need of new accommodation did not arise in their case, although one naturally hoped that, in time, better accommodation might be provided for them as for others. With regard to the non-volitional cases, one of the objects of the Bill was to lead those who at present were frightened off from certification to submit themselves to treatment, or to be submitted by those responsible for them. Therefore there would be need of further accommodation. It was well for them to recognise that there had been some exaggerated enthusiasm about the Bill as opening a new era. The treatment of the insane had varied with the conception and knowledge of their condition. Although the way of representing insanity of older times had gone out of fashion, he was doubtful whether the modern jargon of psychology which had taken its place gave any more accurate and scientific picture than the old idea that an insane man was possessed by a personal and malign influence. The idea of a man "possessed of a devil" gave way to the idea that an insane person was divinely afflicted and had to be restrained as a danger to society and to himself. The first organic stage in our system for dealing with lunacy might be said to have started with the Elizabethan poor-law and the institutional arrangements which arose at that time. The process of dealing with the insane then was one of mechanical restraint, and that idea continued until King George III., who was himself a sufferer, was treated under humane conditions by Dr. Addington, a physician of that day, and father of the statesman, Lord Sidmouth. He introduced the idea of humane treatment which, applied in such an exalted sphere, naturally attracted attention. Still, the idea of mechanical restraint held sway in the beginning of the last century, until Charles Reade wrote "Hard Cash," and Cockton wrote "Valentine Vox." The indignation aroused was such that finally the lunacy laws were amended. The great Lord Shaftesbury was responsible more than anyone else for the passing of the 1845 Act, known as the Magna Charta of the insane, and he became one of the first Commissioners in Lunacy. He was so much averse from the introduction of the justice into the business of certification of the insane that when, eventually, the Act was passed, he resigned his Commissionership in protest, and stood for the principle which was being introduced in the Bill that day. From that time onwards they had had a conflict or clash between what had been called the static mind of the lawyer on the one hand, and the dynamic force of the biologist on the other—that clash which was described by Prof. Kenny in his "Outline of Criminal Law." It was no disparagement to the legal profession to refer to the static mind of the lawyer, because the law must necessarily deal with concrete and defined facts, and that really created the difficulty in this case.

The Doctor's Viewpoint.

The medical profession had necessarily to look at it from the other side. He spoke, not as one who had practised the profession of curative medicine, but from the administrative point of view, the view of the lay authority and of the interests of the community as a whole, and especially from the point of view of prevention as well as of cure. Therefore he again called attention to the position of the medical man in the case. It had been referred to already so pathetically and intimately by his professional colleagues who had spoken in the debate, but he asked the House to consider the position they were in when called on to deal with a case that was first of all recognised in a family as one of difficulty, of violent temper, of a rather changeable and fickle state of mind, of a person difficult to deal with. Commonly, the person was regarded as not only a nuisance, but as being voluntarily responsible for the trouble in the family and the household. The medical man came in and realised that it was a case where the strain, in one form or another, had been so great as temporarily to derange the mind of the individual. It was a temporary early case, and it would be ridiculous to sign that as a case of certified insanity. It was obvious, from the mere facts of the case, that it arose from the normal incidents of health and ill-health in a life; such cases as arose after childbirth, after fevers, confusional cases, and temporary alcoholic or toxic cases. These were difficult cases that arose and which had to be treated by the medical man, who said "It is absurd that this should be signed up as insane." These were the cases which up and down the land at present were not being certified and never would be certified. Therefore, here was a way in which these people could get the expert care, comfort, and treatment that would enable them to tide over the time until they could again resume their normal place in family and public life. It must invite the sympathy of everybody who understood the case. When the doctor was called in the case might be in a violent temporary state of insanity. What was the doctor to do? He chafed at delay, and the relatives chafed at delay, but as the case was at present the only possibility for these violent cases was to search out a justice of the peace. He spoke as a justice of the peace as well as a medical man, and he knew how difficult it was for individuals to find a justice of the peace when he was required in such a case, or to find one who was able to go into the case. As had been well said already, as a rule the justice of the peace deferred to the medical man's opinion, and said "the medical man says so, and obviously I must sign it up." It was true, as the Royal Commission found, that the safeguard of a justice of the peace having to certify a case was a very small one compared with the safeguards provided in this Bill. They had a man who, it seemed to him, was more qualified to look after the safety of those concerned than a justice of the peace, because he was to be a medical man approved by the Board of Control. In fact the criticism of this proposal made from the medical profession was that it might start a new specialty—a separate and distinct class of practitioners. Be that as it might, he thought that the Board of Control would obviously approve only men who would take public point of view, and who would realise their responsibilities in the matter. He wanted the House to sympathise with the ordinary family doctor and help him to get through these delays and difficulties that were so troublesome and tiresome to the patients and their families. The medical man realised equally well the necessity for protecting the personal liberty of the subject. He did not believe that anybody so much as the medical man would be so acute and keen to discover any kind of ill-treatment and mischief that was going on in a case. Till the end of time there would always be cases where the law would be defeated; no law would be perfect, and those who supported this measure so keenly only asked people to recognise that they had put in a safeguard of a medical man approved by the Board of Control in addition to the family doctor as a more efficient person than the judicial authority. In regard to the Board of Control he (Colonel Fremantle) agreed with many of the criticisms.

It had been suggested that there was a stigma attached to the Board of Control, and that a new body should be formed to deal with these persons. There was no need to have a fresh Board for every class of insane or mentally afflicted persons who were to be treated.

It was in order to get rid of the stigma that the Mental Deficiency Bill of 1913 was passed, and that the Lunacy Commission was absorbed in the Board of Control. Some stigma must attach to any body that undertook these functions, because they were concerned with people who might eventually be certified as insane. They must trust the Board of Control, and in committee they could consider the clauses dealing with the Board in order to secure that the Board would have the confidence of the public as being efficient and expert, and at the same time a sensible body to deal with this subject. But unless they gave a salary and position to the Commissioners greater than those already enjoyed by the class of experts from whom the Commissioners were drawn, they would not get the right class of experts to give their services, and who would command the respect of the superintendents of the institutions engaged in the treatment of mental disease. Sir Maurice Craig, in his evidence to the Royal Commission, said that he had seen in the Board of Control a considerable change and progress in methods; his former criticism had passed away, and he believed that there was evidence that they were doing their work well and in a progressive manner. The House must not forget the matters which were naturally left out of the Bill, and which appeared in the Royal Commission's report. There were two germane matters which did appear in the Bill, which were of immense importance to the treatment of the individual before and after treatment institutions. Those were the systems of after-care and medical hygiene generally. There were many associations which undertook this voluntary work, which was invaluable. Some power was given for after-care, and in committee they would want to extend the powers given to after-care associations in various ways, because everybody would realise that the real trouble of the temporarily insane person began when he got back to his own home, especially in the poorer homes. These people then met all the weight of domestic responsibility and domestic trouble and inconvenience, and had to fend for themselves. The whole of the good done by six months' or a year's rest in an institution might be dissipated in three months if there was not sufficient after-care. Above all, they must remember that they wanted to be able to treat cases as early as possible, with a view to preventing many of the 50,000 people who were now in mental institutions from having to undergo institutional treatment. With newer ideas and newer possibilities they hoped to get them early and develop the prevention, rather than have to engage in the cure of the hopelessly insane.

(To be continued.)

HOUSE OF COMMONS

WEDNESDAY, FEB. 12TH.

Lunatics and Cottage Homes.

Major GLYN asked the Minister of Health whether, before his department agreed to the maintenance of lunatics in cottage homes in rural areas, he would ascertain the opinions of the county councils, in view of the effect such a proposal would have in many villages.—Mr. GREENWOOD replied: All relevant considerations will, of course, be borne in mind before effect is given to any proposals of this nature.

Notification of Cancer.

Major GLYN asked the Minister of Health whether, on account of the public concern and uncertainty regarding the cause and effect of cancer, he would consider having this disease made notifiable, thus enabling the Cancer Research Council to obtain extra data and assisting local practitioners to obtain specialist advice in the earliest stages of treatment.—Mr. GREENWOOD replied: I do not think that compulsory notification of cancer, which would probably entail legislation, would be effective in securing early diagnosis, which I am advised is the first essential.

THURSDAY, FEB. 13TH.

Death from Anthrax.

Mr. JOWETT asked the Home Secretary whether his attention had been called to the death from anthrax of Mrs. Lily Kalaher, who had been employed as a woolsorter by Messrs. William Root, Limited, of Bradford, and to the evidence given by Dr. Eurich, bacteriologist, at the inquest to the effect that the grey Syrian wool that she had been sorting ought to be scheduled as dangerous, and that the disinfectant used as a precaution against anthrax at the mill was useless; and, if so, whether he intended to schedule grey Syrian wool as a dangerous wool without further delay.—Mr. CLYNES replied: I have received a report on this case by the factory inspector who attended the inquest. This shows that Dr. Eurich gave evidence to the effect suggested in the question, but it also appears that previous to the onset of the disease the unfortunate woman had been sorting other material besides grey Syrian wool, and the precise origin of the infection does not seem to have been established at the inquest. The question of an extension of the Wool Sorting Regulations deserves and will receive prompt and serious consideration, but it will be necessary, before any decision is reached, to make further inquiries and review the position in the light of all the information available. I may add that the inspector reports that the requirements of the Regulations were fully observed by this firm, and were applied not only to scheduled but also to non-scheduled wools, so that even if grey Syrian wool had been scheduled, it would not, apparently, have made any difference in this case.

Diagnosis and Treatment of Silicosis.

Mr. HOFFMAN asked the Home Secretary whether in the legislation he proposed to introduce setting up medical boards for the purposes of the diagnosis and treatment of silicosis, for research purposes and training, the central bureau is to be in Sheffield; and when it was proposed to introduce such legislation.—Mr. CLYNES replied: Yes, Sir, it is contemplated that the centre of the new organisation which would be set up for the purposes of the medical examinations required under the Act, should be at Sheffield. I regret I am not in a position to say when the proposed Bill will be introduced.

Psittacosis.

Sir GEORGE BOWYER asked the Minister of Health: (1) whether he would adopt the suggestion made by Lord Dawson, that an embargo be placed upon the importation of all parrots for a reasonable period, in view of the danger of a spread of parrot disease; and (2) whether he had received notice of the warning of an epidemic of parrot disease which was given last week by the doctor at the inquest on Miss Rogers, who died from psittacosis; and what steps the Ministry of Health were taking to assist in the diagnosis and treatment of this disease.—Mr. GREENWOOD replied: I have seen a newspaper report of the inquest on this case. The steps which have been and are being taken by my department in this matter are summarised in a memorandum which has recently been issued to local authorities and is now on sale. The question whether it is desirable to place any restrictions on the importation of parrots is under consideration, but I am not at present satisfied that such measures are necessary for the protection of the public health.

Dietary and Dental Decay.

Lieut.-Colonel FREMANTLE asked the Minister of Health whether his attention had been drawn to the researches at Sheffield University, now being published by the Medical Research Council, into the effect of a proper dietary for expectant others and for children in the prevention of dental decay; and whether he would issue to maternity and child welfare centres a paper of simple information and guidance for those attending such centres.—Mr. GREENWOOD replied: The answer to the first part of the question is in the affirmative. As regards the second part, it is the common practice at these centres to give advice as to a correct dietary, including instruction with a view to the prevention of dental decay, and as at present advised I do not consider it necessary to issue any special paper on this subject.

Dogs and Vivisection Experiments.

Mr. FREEMAN asked the Home Secretary whether any experiments by vivisection were conducted or allowed with the object of benefiting dogs; and, if so, how many were performed last year.—Mr. CLYNES replied: Such experiments would be allowed in suitable cases. During 1929, 451 experiments (all inoculations), of which 74 were on dogs, were performed with the object of discovering a prophylactic serum for distemper. No doubt other of the experiments performed were done with the direct or indirect object of benefiting dogs, but the information in my possession does not enable me to distinguish them with any certainty.

MONDAY, FEB. 17TH.

Pasteurised Milk and Tubercle Germs.

Mr. LAWTHER asked the Minister of Health if any examinations of samples of pasteurised milk by any public authorities had shown evidence of living germs of tuberculosis?—Mr. GREENWOOD replied: I understand that some samples of milk alleged to have been pasteurised have been found by local authorities to contain tubercle bacillus.

Mr. LAWTHER asked the Minister of Health if any examinations which had been made of tuberculous material showed the presence of bovine tubercle bacillus in children who had been brought up entirely on pasteurised milk?—Mr. GREENWOOD replied: I am not aware of any examinations which

have shown the presence of bovine tubercle bacillus in such children.

Certified and Grade A Milk and Tuberculosis.

Mr. LAWTHER asked the Minister of Health what examinations, if any, had been taken of samples of certified and T.T. (Grade A) milks by public authorities; and if such samples had shown any evidence of living germs of tuberculosis?—Mr. GREENWOOD replied: These milks are not examined for tubercle bacillus as a matter of routine, and I cannot say how many samples have been so examined. I have reports of a few instances in which tubercle bacillus has been found in the milks.

Punishment by the "Cat."

Dr. HASTINGS asked the Home Secretary in how many cases, if any, during the last five years the administration of punishment by the cat had taken place in two or more stages?—Mr. CLYNES replied: In no case within the memory of present officers of the prison service has the administration of corporal punishment taken place in two or more stages. If the medical officer stops a flogging on medical grounds that is final, and the flogging is never resumed at a later date.

Humane Slaughter of Animals.

Lieut.-Colonel MOORE asked the Minister of Health the total number of local authorities in England and Wales who had adopted the Ministry's model bye-law 9b in regard to the humane slaughter of animals up to Jan. 31st?—Miss S. LAWRENCE (Parliamentary Secretary to the Ministry of Health) replied: The number is 349.

Hygienic Methods of Handling Fish.

Mr. ARTHUR MICHAEL SAMUEL asked the Minister of Agriculture whether he was framing suitable regulations, to be enforced by law, to ensure more hygienic methods at sea for handling and packing trawled fish, so as to retard what was technically known as autolysis, and to reduce contamination by bacterial infection?—Mr. BUXTON replied: Although the report on the handling and stowage of white fish at sea was only published by the Department of Scientific and Industrial Research very recently, steps are already being taken by some owners to equip their vessels with the apparatus necessary for carrying out its recommendations. It is not yet clear to what extent the recommendations can be adopted in commercial practice, but I am confident that legislation will not be required to induce trawler owners and fishermen to take advantage, to the limit of practicability, of the information furnished by the report.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Feb. 24th.—8 P.M., ODONTOLOGY. Paper: Dr. Georges Villain (Paris): The Problem of Stabilisation and Articulation of Dentures.

TUESDAY.—5 P.M., MEDICINE. Discussion on The Treatment of Lung Abscess. Openers: Dr. F. G. Chandler and Mr. A. Tudor Edwards. Followed by Dr. L. S. T. Burrell and Mr. J. E. H. Roberts.

WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Discussion on Canine Distemper. Openers: Mr. Thomas Dalling and Mr. George W. Dunkin. Other speakers will also take part.

THURSDAY.—UROLOGY. Meeting at Liverpool at the invitation of the Liverpool Medical Institution. 8.30 A.M. Train from Euston (breakfast train). 12.35 P.M. Arrive Liverpool. Lunch at University Club (opposite Adelphi Hotel). Operations at four Liverpool Hospitals. 3.45 P.M. Clinical Pathological Meeting at the Liverpool Medical Institution. 5.20 P.M. Return train from Liverpool. 9.5 P.M. Arrive Euston.

FRIDAY.—5.30 P.M., DISEASE IN CHILDREN. (Cases at 4.30 P.M.) 8 P.M., EPIDEMIOLOGY. Paper: Sir Leonard Rogers: Further Experience in Forecasting Epidemics in India and their Bearing on the Reduction of Cholera Epidemics.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Feb. 24th.—8.30 P.M., Discussion on the Treatment of Syphilis, to be introduced by Colonel L. W. Harrison.

WEDNESDAY.—9 P.M., Sir John Thomson-Walker: Enlarged Prostate and Prostatectomy (Second Lettsomian Lecture).

ROYAL INSTITUTION, Albemarle-street, W.

THURSDAY, Feb. 27th.—5.15 P.M., Mr. J. B. S. Haldane: Some Problems of Genetics.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Feb. 27th.—8.30 P.M., Lieut.-Colonel Henry Smith: The Forging of Seals and Finger Prints and its Remedy. With demonstrations.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.

FRIDAY, Feb. 28th.—8.30 P.M. Papers will be read by Dr. S. H. Browning and Mr. P. G. Doyne on Syphilitic Diseases of the Eye. A Discussion will follow.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

THURSDAY, Feb. 27th.—5 P.M., Dr. J. A. Glover: The Incidence of Rheumatic Diseases. (First Milroy Lecture.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Feb. 24th, to SATURDAY, March 1st.—MEDICAL SOCIETY Lecture Room, 11, Chandos-street, Cavendish-square, W., Tues., at 4 P.M., Lecture by Prof. Dame Louise McIlroy: Lantern Demonstration of the Management of Abnormal Labour. No fee.—ALL SAINTS HOSPITAL, Vauxhall Bridge-road, S.W. Wed., 2 P.M., Clinical demonstration, Mr. R. Coyte: Cystoscopies. No fee.—INFANTS HOSPITAL, Vincent-square, S.W. Fri., 4 P.M., Demonstration, Dr. Eric Pritchard: Difficult Cases of Feeding. No fee.—CHILDREN'S CLINIC AND OTHER HOSPITALS, Post-graduate Course in Diseases of Children, Afternoon and some mornings. Two weeks.—ROYAL EYE HOSPITAL, St. George's-circus, S.E. Series of demonstrations on the Diagnosis and Treatment of Diseases of the Eye. Mon. to Fri., for two weeks daily.—HOSPITAL FOR TROPICAL DISEASES, Gordon-street, W.C. Clinical demonstrations, Tues. and Thurs. afternoons at 2 P.M.—Further particulars from the Fellowship of Medicine.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, S.E.

THURSDAY, Feb. 27th.—9 P.M., Dr. Sydney Thomson: Ringworm.

NATIONAL HOSPITAL POST-GRADUATE COURSE, Queen-square, W.C.

MONDAY, Feb. 24th.—12 noon, Dr. Greenfield: Pathology of Nervous System. 2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Mr. Leslie Paton: Control of Ocular Movements.

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Critchley: Central Disorders of Vision.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Mr. Just: Deafness in Relation to Intracranial Disease.

FRIDAY.—12 noon, Dr. Purdon Martin: Anatomy and Physiology of Nervous System. 2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Mr. Elmquist: Demonstration of Re-educative Exercises.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Feb. 24th.—2.30 to 5 P.M.: Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 to 5 P.M.: Medical, Surgical, Ear, Nose and Throat Clinics. Operations.

WEDNESDAY.—2.30 to 5 P.M.: Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M.: Dental Clinics. 2.30 to 5 P.M.: Medical, Surgical, Nose, Throat, and Ear Clinics. Operations.

FRIDAY.—10.30 A.M.: Throat, Nose and Ear Clinics. 2.30 to 5 P.M.: Surgical, Medical, and Children's Diseases. Clinics. Operations.

ROYAL NORTHERN HOSPITAL, Holloway.

WEDNESDAY, Feb. 26th.—3.15 P.M. (at the Royal Chest Hospital). Dr. F. E. Saxby Willis: Diaphragmatic Hernia.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Feb. 28th.—4 P.M., Mr. F. Walkyn-Thomas: Intrinsic Carcinoma of the Larynx.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Feb. 25th.—5 P.M., Dr. G. B. Dowling: Seborrhœa. Seborrhœic Dermatitis.

THURSDAY.—5 P.M., Dr. K. Sibley: Electrotherapeutics.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ousely-road, Balham, S.W.

WEDNESDAY, Feb. 26th.—4 P.M., Mr. V. Zachary Cope: Demonstration of Surgical Cases.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Keppel-street, W.C.

THURSDAY, Feb. 27th.—5 P.M., Dr. W. G. Savage: Food Poisoning. The lecture is open to the public.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY, 49, Leicester-square W.C.

WEDNESDAY, Feb. 26th.—4.15 P.M., Clinical Cases. 5 P.M., Dr. Kenneth Wils: The Infectivity of the Seborrhœic Organism.

ST. MARY'S HOSPITALS, Manchester.

FRIDAY, Feb. 28th.—4.15 P.M. (at the Whitworth-street West Branch), Dr. J. Crighton Bramwell: Cardiac Complications of Pregnancy. (Post-graduate Lecture.)

ANCOATS HOSPITAL POST-GRADUATE COURSE, Mill-street, Manchester.

THURSDAY, Feb. 27th.—4.15 P.M., Mr. E. E. Hughes: Renal Tuberculosis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

FRIDAY, Feb. 28th.—3.30 P.M. (at the Royal Infirmary), Dr. R. Platt: Applied Physiology in the Diagnosis and Treatment of Renal Disease.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY, Feb. 26th.—4.15 P.M. (at the Western Infirmary), Mr. J. Mill Renton: Surgical Cases.

Appointments.

PINTO-LEITE, H., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Superintendent to the Hospital of S.S. John and Elizabeth, Grove End-road, N.W.

SEMPLE, A., M.B., Ch.B. Glasg., D.P.H., Medical Officer of Health, Carlisle.

STIRLING, T. S., M.B., Ch.B. Glasg., D.P.H. Camb., Assistant County Medical Officer of Health for Somerset.

St. John's Hospital, Lewisham: GIBBENS, J. H., M.A., M.R.C.P. Lond., M.R.C.S., Physician in Charge of the Children's Department: YEO, K. J., M.B., B.Chir. Camb., D.M.R.E., Physician in Charge of X Ray Department; and BROCKMAN, E. P., M.Chir. Camb., F.R.C.S. Eng., Surgeon in Charge of Orthopædic Department.

Vacancies.

For further information refer to the advertisement columns.

Ashford Hospital, Kent.—H.S. £160.
Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.
Barrow-in-Furness, North Lonsdale Hospital.—H.S.'s £150.
Bath, Royal United Hospital.—H.S. At rate of £150.
Birkenhead General Hospital.—Sen. H.S. and H.P. At rate of £150 and £100 respectively. Also Cas. O. £100.
Birmingham, Queen's Hospital.—Three H.P.'s, H.S., Anæsthetist. Also Dental H.S. Each £70.
Birmingham Union, Western House.—Asst. M.O. £500.
Birmingham University.—Asst. Lecturer and Demonstrator in Anatomy. £300.
Bootle Borough Hospital.—Two Jun. H.S.'s. Each at rate of £150.
Bradford Royal Eye and Ear Hospital.—Jun. H.S. £150.
Bradford, St. Luke's Municipal General Hospital.—H.P.'s, and H.S.'s. Each at rate of £200.
Burnley, Victoria Hospital.—H.P. At rate of £125.
Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.
Canterbury, Kent and Canterbury Hospital.—H.S. At rate of £125.
Cardiff Royal Infirmary.—Radium Registrar. At rate of £200.
Carlisle, Cumberland Infirmary.—H.P. Also H.S. to Special Depts. Each at rate of £155.
Central London Ophthalmic Hospital, Judd-street, W.C.—Hon. Dental Surgeon.
Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Two Hon. Assts. to Out-Patient Dept.
Charing Cross Hospital, W.C.—Med. Reg. £150. Obst. Reg. £100. Also Registrar to Ear, Nose, and Throat Dept. £100.
City of London Maternity Hospital, City-road, E.C.—Res. M.O., also Asst. Res. M.O. At rate of £100 and £80 respectively.
Connaught Hospital, Orford-road, E.—Sen. Res. M.O. At rate of £150. Also Res. H.S. and H.P. Each at rate of £100.
Dartford, Kent, Darenth Training Colony.—Med. Supt. £1000.
Dewsbury County Borough.—Deputy School M.O., &c. £600.
Doncaster Royal Infirmary.—3rd H.S. At rate of £150.
Dreadnought Hospital, Greenwich.—Phys.-in-charge of Out-Patients.
Dudley, Guest Hospital and Eye Infirmary.—Asst. H.S. £150.
Eastern Dispensary, Leman-street, E.—Ophthalmic Surgeon.
East Ham Memorial Hospital, Shrewsbury-road, E.—Res. M.O. At rate of £200.
Evelina Hospital for Children, Southwark, S.E.—Hon. Surgeon to Out-patients.
Exeter, Royal Devon and Exeter Hospital.—H.P. At rate of £150.
Great Yarmouth General Hospital.—Sen. H.S. £180.
Greenwich Union.—Asst. M.O. £300.
Halifax Corporation Isolation Hospital.—Res. M.O. £350.
Hertford County Hospital.—Res. Surg. O. At rate of £250.
Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. Each at rate of £100.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Asst. Phys.
Huddersfield Royal Infirmary.—H.S. £150.
Hull Royal Infirmary.—Cas. H.S. At rate of £130.
Ipswich, East Suffolk and Ipswich Hospital.—Two H.S.'s. Each £120.
Kent County Council.—Asst. M.O., &c. £800.
Kingston-upon-Hull, City Fever Hospital and Sanatorium.—Med. Supt. £800.
Kingston-upon-Hull, City and County of.—Tuberculosis Officer. £800.
Liverpool, Walton Institution, Rice-lane.—Res. Asst. M.O. £200.
L.C.C. Mental Hospitals Service.—8th Asst. M.O. £445.
L.C.C., Public Health Department.—M.O. £715.
Leicester Health Dept.—Temporary M.O. 10 gns. per week.
Leicester Royal Infirmary.—Two H.P.'s, also H.S.'s. Each £125.
London Hospital, E.—Med. First Asst. and Reg. £300.
Maidstone, Kent County Ophthalmic and Aural Hospital.—Ophth. H.S. At rate of £200.
Manchester, Ancoats Hospital.—H.S. At rate of £100.
Manchester City.—M.O. for Maternity and Child Welfare. £600.
Manchester, County Mental Hospital, Prestwich.—Asst. M.O. £500.
Manchester Royal Children's Hospital.—Two Asst. M.O.'s for Out-Patients' Dept. Each at rate of £150. Also Res. Surg. O. At rate of £125.
Mile End Hospital, Bancroft-road, Mile End, E.—Res. Asst. M.O. £450.
Miller General Hospital, Greenwich-road, S.E.—Res. M.O., Cas. O., and H.P. At rate of £250, £150, and £125 respectively.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Res. M.O. At rate of £150.
Newcastle-on-Tyne, Hospital for Sick Children.—Jun. H.S. At rate of £100. Also Res. Sen. H.S. and Res. H.P. Each at rate of £95.
Northampton General Hospital.—Two H.S.'s, also Two Asst. H.S.'s. Each at rate of £150.
Northern Rhodesia, Roan Antelope Copper Mines, Ltd.—Jun. M.O. £900–£1000.
Plymouth City Mental Hospital, Blackadon, Ivybridge.—Med. Supt. £750.
Preston and County of Lancaster Royal Infirmary.—H.S. £150.
Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Res. Anæsthetist. At rate of £80.
Queen Mary's Hospital for the East End, E.—House Anæsthetist and H.P. At rate of £120.
Rochester, St. Bartholomew's Hospital.—Res. Radiologist. £150.
Royal National Orthopædic Hospital, Great Portland-street, W.—H.S. At rate of £150.
St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.—Sen. and Jun. Hon. Med. Registrars.
St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum, City-road, E.C.—H.S. At rate of £75.
St. Paul's Hospital for Diseases of the Genito-Urinary Organs and Skin, Endell-street, W.C.—H.S. At rate of £150.
St. Peter's Hospital for Stone, Henrietta-street, Covent Garden, W.C.—H.S. At rate of £75.
St. Thomas's Hospital, S.E.—Radium Reg. and Asst. to Radiological Dept. £250.
Salford Royal Hospital.—H.P., two H.S.'s, and Cas. H.S. All at rate of £125.
Sheffield, Jessop Hospital for Women.—Asst. H.S. At rate of £100.
Sheffield University, Dept. of Pathology and Bacteriology.—Asst. Bacteriologist. £300.
Southampton Free Eye Hospital.—H.S. £150.
Southampton, Royal South Hants and Southampton Hospital.—H.P. At rate of £130.
Stafford, Staffordshire General Infirmary.—H.S. and H.P. At rate of £200 and £100 respectively.
West Bromwich and District General Hospital.—H.S., H.P., and Cas. H.S. Each at rate of £200.
West London Hospital, Hammersmith-road, W.—H.P., Two H.S.'s and Res. Anæsthetist. Each at rate of £100. Hon. Asst. Surg., Hon. Med. Reg., and Hon. Obstet. Reg.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Four Chief Clin. Assts. Each 1 gn. per session.
Westminster Hospital, Broad Sanctuary, S.W.—Clin. Asst. to Dental Dept.
Willesden General Hospital, N.W.—Res. H.S. £100.
Willesden Municipal Hospital.—Res. M.O. £150.
Willesden U.D.C.—Two Dentists, £572 6s. 4d. Also Part-time Anæsthetist and Part-time Oculist. At rate of £300 and £225 respectively.
Windsor, King Edward VII. Hospital.—Res. M.O. £200. Also Sen. H.S. £140.

Births, Marriages, and Deaths.

BIRTHS.

DODD.—On Feb. 11th, at a London nursing home, the wife of Charles Tattershall Dodd, L.D.S.R.C.S. Eng., of "Glen gowan," Thames Ditton, of a son.

GARFIELD.—On Feb. 13th, to Marguerite Garfield, M.R.C.S., L.R.C.P., wife of Montagu Garfield, M.R.C.S., L.R.C.P., L.D.S., of Palmeira Mansions, Hove—a son.

TOOTH.—On Feb. 14th, at Clare House, Albion-street, Lewes, the wife of Dr. R. S. Tooth, of a daughter.

MARRIAGES.

VERE-HODGE—WALTERS.—On Feb. 14th, at Essex Church, Kensington, by the Rev. C. J. Street, M.A., LL.B., Gwendolen Sykes, daughter of Dr. and Mrs. Walters, of Pinecroft, Farnham, Surrey, to Harry Kirke Vere-Hodge, also of Farnham.

DEATHS.

EVANS.—On Feb. 13th, Dr. John Evans, D.S.O., at Bryniau, Caernarvon.

GOUGH.—On Feb. 6th, at 3, Buckingham Gate, London, Elizabeth Marion Gilchrist, wife of Harold R. Gough, and only daughter of Dr. and Mrs. Anthony McCall, of Bournemouth.

JORDAN.—Suddenly, after a brief illness, George Robert Leslie Jordan, M.B., B.Ch. (T.C.D.), High-street, Halstead, Essex, aged 34.

LLEWELYN-JONES.—On Feb. 13th, from pneumonia after a short illness, John Llewelyn-Jones, M.D., aged 57.

MOORE.—On Feb. 11th, at Priory-road, Kew, Hubert William Moore, L.D.S.R.C.S. Eng.

ROCHE.—On Feb. 11th, suddenly, at Sheringham, Dr. E. B. Roche, aged 81.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

ESTIMATION OF DANGERS OF AVERTIN.

DETERMINATION of mortality-rates of anæsthetics is one of the least satisfactory of statistical exercises. The factors that may play a part in the causation of death during anæsthesia are so many and so variable that in any given case it may be impossible to attribute the end to any one or even to any two definite causes. It is not surprising therefore to find a vigorous defence put up against the accusations which H. Killian brought against the rectal anæsthetic, avertin. E. Glaesmer[1] shows that in the series of 16 fatalities associated with avertin which Killian had collected there was insufficient discrimination between various factors involved in the fatalities, and certainly not enough evidence to incriminate the anæsthetic per se. Obviously if the anæsthetic is held to account when death occurs after a formidable operation on a patient in the last stages of exhaustion a just view of the danger of that anæsthetic has not been taken. In fact any anæsthetic would come out of the ordeal with an equally unfavourable record. Again if patients who are unsuitable subjects for the anæsthetic succumb to its effects, the anæsthetic should not be burdened with the blame. We do not regard ether as dangerous because patients suffering from acute bronchitis succumb if they are subjected to long inhalations of the drug. Equally we must not blame avertin if fatality follows its employment on those who are suffering from severe disease of liver or kidneys. As E. Glaesmer properly points out, with every new anæsthetic we must learn its particular suitabilities and contra-indications, and until these are familiar and generally acted on it is little use trying to state a mortality-rate for the drug.

HALF-MINUTE THERMOMETRY.

Dr. H. W. Hales (Sheringham, Norfolk) writes: "Although thermometers are stamped by the National Physical Laboratory, Kew, as a guarantee of the accuracy of their reading, I have frequently found that a true reading is only obtained after five or ten minutes, when the instrument is stamped as a 'half-minute.' This seems to apply to the very subnormal temperatures, and not to any extent to those above 98·4° F. Seeing that temperatures of 95·6° to 96·6° F. are very much more common than is generally supposed, the matter seems to be of considerable clinical importance. Can you tell me the reason for this peculiarity? My own temperature frequently runs at a very subnormal level, so I have been able to test the accuracy of my statements on many occasions with many different thermometers, and controls have been made on numerous patients."

The Kew Certificate is no longer compulsory, but even a perfect "half-minute" thermometer can only give a correct reading in a cavity whose temperature is constant, such as the rectum. The temperature of the mouth, even in the alcove beneath the tongue, is affected by the currents of air which have recently passed through the mouth of the patient. This effect is so pronounced that a mouth reading, except in cases of fever, requires at least a minute, and often three minutes or more, to reach its proper level. Anyone can ascertain this for himself who will take the trouble of watching the mercury rise after the thermometer has been placed in the patient's mouth. When the surrounding atmosphere is cold the correct mouth reading is still more delayed, and in alpine sanatoriums where mouth temperatures are taken it is often the rule for the thermometer to remain in situ for ten minutes, whatever may be the length of time that the thermometer itself takes to register. On the other hand, a "three-minute" thermometer will give a correct reading in half a minute in the rectum, or in still shorter time in the stream of urine. Briefly a "half-minute" thermometer requires a "half-minute" medium.

DOCTOR'S CONSULTING ROOMS AT CHEMISTS' SHOPS IN SOUTH AFRICA.

THE following resolution passed by the Associated Pharmaceutical Societies of South Africa was submitted at the annual meeting of the South African Pharmacy Board, held at Bloemfontein, on Jan. 15th: "That the Medical Council and Pharmacy Board be asked (*a*) to take steps to prevent medical practitioners from having consulting rooms attached to chemists' shops, and displaying their name-plates on the chemists' premises; (*b*) to debar the use of prescription pads and envelopes which have the name and address of a chemist printed thereon." The Registrar explained that the Board at its last meeting decided to ascertain the views of the Medical Council on the subject. This was done, and the reply of the Medical Council was to the effect that it was not prepared to do anything in connexion with the first point. With regard to the second, the Medical Council had decided to make it one of the matters which would be liable to the Council's disciplinary powers. Mr. J. Christie, M.L.A., the Chairman, announced that the Bloemfontein chemists had notified him that they were opposed to the Board taking any steps relative to the question of consulting rooms and name-plates of medical practitioners attached to chemists' premises on the ground that the matter rested with the Medical Council. After discussion it was agreed to notify the Associated Pharmacy Societies that the Board "considers both practices undesirable." It realised that the first-mentioned practice was one of very long standing, but considered that it would in time die out of its own accord. With regard to the second practice, the Board would like to see this cease at once.

[1] Münch. med. Woch., Dec. 13th, 1929.

METALIX TUBES.

A 35-page brochure on Metalix X-ray tubes is issued by Philips Lamps, Ltd. (145, Charing Cross-road, London, W.C.2), and will be found of value to users and potential users of these tubes. The first 15 pages are devoted to an account of the general aim of the makers to supply the varying requirements of radiographic work; three tubes have been produced, known as 2·5, 6, and 10 kw., an adequate description of the conditions under which each should be worked and maintained being given. The brochure also contains valuable information on design, working efficiency, and cost to which reference might with advantage be made by those engaged in radiographic work.

MANIC-DEPRESSIVE PSYCHOSIS.

Sir Robert Armstrong-Jones, who presided at the meeting of the Section of Psychiatry, Royal Society of Medicine, on Feb. 11th (reported on page 353 of our last issue), would have made the following concluding remarks had time permitted:—

Manic-depressive insanity expresses the whole of the symptom-complex. The "entity" was first described by Fabret as "folie circulaire," and later by Kraepelin by its present title. It has nothing to do with neurasthenia, but much with heredity. It is merely an exaggeration of the normal mental rhythm, and of all the mental abnormalities it is the one best known to the family doctor; only in its severer forms is it known to the specialist—whether he is styled neurologist or psychiatrist—and only in its gravest forms does it come under certificates. Those not conversant with insanity cannot realise the dread of a relapse felt by the sufferer, and something must be done for him. Bevan Lewis attributed its pathology to some metabolic change in the cortical neurons; melancholia being a slight change and mania a deeper one, but of the same kind, and constituting what he described as a state of *labile equilibrium*.

The disease always comes on suddenly, without prodromal symptoms (unlike ordinary mania and melancholia). There are no hallucinations or delusions, and for this reason it has been called *mania* (or *melancholia*) *raisonnante*. There is complete return to lucid intervals—a complete *restitutio ad integrum*, and no dementia follows. The treatment aimed at is to break the habit (or, as Savage said, "abort" the rhythm). The first thing the physician always does in every disease is to change the diet. A strong aperient, such as calomel, jalap, or the stronger salines may stop an attack. Bromides are absolutely necessary to "jam down" or repress hyperæsthetic centres. Long immersion baths may help.

A THERMO RADIO PAD.

Radium Electric Ltd., of 24, Grosvenor-gardens, London, S.W.1, have submitted for our inspection an electrically heated pad which serves as a portable and equable source of heat, the effect of which is enhanced by radium emanation. The radio-active substance which is safely embedded in the pad is of a standard guaranteed by the Radium Institute of Vienna to be not less than 0·01 mg. per pad. The wiring is insulated in asbestos, and a three-way switch provides further maintenance of three different constant temperatures, a thermostat automatically cutting off the current when the desired heat is reached. The whole is enclosed in a damp-proof layer of Billroth tissue with a washable linen cover. The pad can be supplied for any voltage, and has simply to be affixed by its wire to any available lamp-bracket or wall-plug. The running cost, even at 6*d.* per unit of current, only amounts to about a penny for four hours. The general construction of the pad has also been tested at the Faraday House Laboratories, and is described as satisfactory. The cushion, which is briefly described as the "Q-Ray," costs three guineas, and may be had direct from the manufacturers, or from chemists and electrical dealers. A number of the pads are stated to be in use at various hospitals and sanatoriums in Vienna, and their application is suggested in such conditions as lumbago, neuralgia, sciatica, or any painful inflammatory condition.